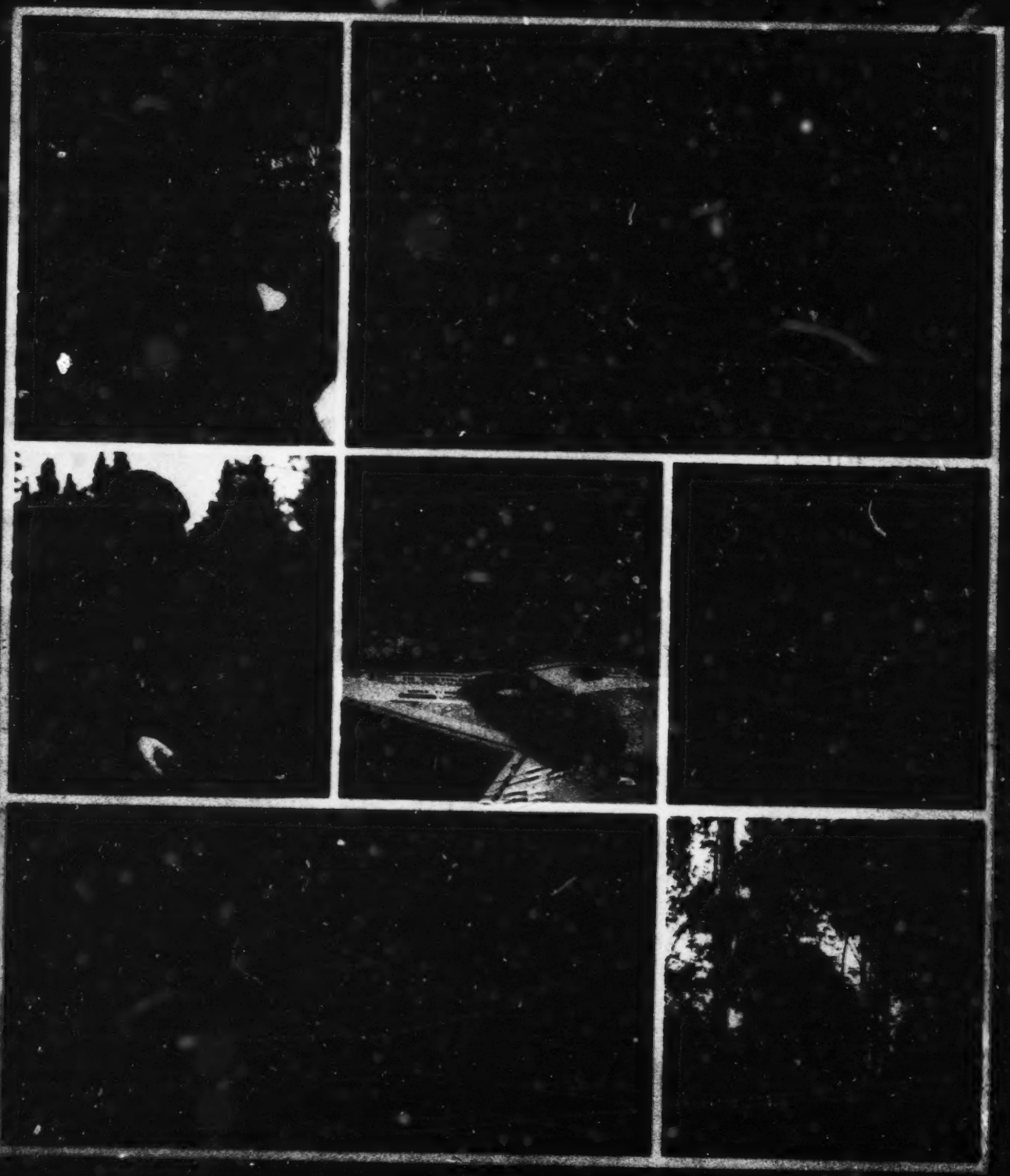

Annual Report

Minister of Natural Resources of the Province of Ontario

To his Honour
The Lieutenant-Governor
of the Province of Ontario

May it please your Honour
The undersigned begs respectfully
to present to your Honour
the Annual Report of the Ministry of
Natural Resources for the fiscal year
beginning April 1, 1982
and ending March 31, 1983

Alan W. Pope
Minister

All photographs taken by Ministry staff.

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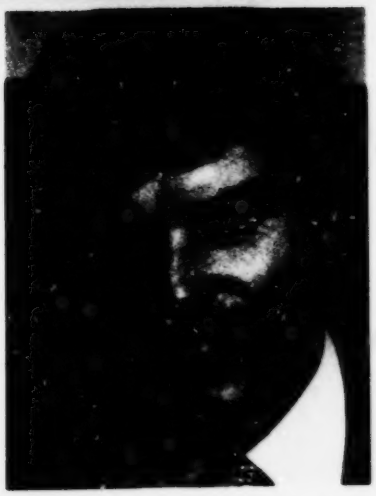
Minister's Message



As I review the ministry's many accomplishments of the 1982-83 fiscal year, I am pleased to note that we have, in a time of government-wide restraint and budget cuts, continued to deliver a wide range of resource programs—and have developed a good many new ones.

The employment bridging program which I initiated in 1982 with the federal Minister of Employment and Immigration was one of last year's real successes. The program provided jobs in forestry, mining, outdoor recreation and other resource areas for skilled, unemployed workers—jobs that made it possible for these workers to stay in their communities, where they have been, and will continue to be, a valuable human resource.

In 1982-83, almost 6,000 workers were provided with close to 90,000 work-weeks of labor. I am pleased that our government funded the $20-million Ontario portion of the program through the Board of Industrial Leadership and Development (BILD), the Cabinet committee responsible for the consolidation and co-ordination of the province's industrial strategy.

Public consultation was a key factor in our resource planning activities in 1982-83. During the year, 18 public forums were held on private land forestry, and another 200 were held in connection with District Land Use Guidelines. These land use meetings gave the ministry's planners a chance to gauge public reaction, identify key issues and take any public concerns into account when making program planning decisions.

It was my pleasure to personally host seven of these land use forums which were attended by 3,300 people.

The land use planning exercise represents 10 years of intensive study and planning by our ministry, and is a major step toward achieving our goal of integrated resource management in Ontario.

During the last fiscal year, five new Forest Management Agreements were signed, including the first FMA with a non-pulp and paper company.

Here again, public consultation had an important part to play. During 1982-83, we held numerous public information sessions throughout the north in connection with the new agreements.

As of March 31, 1983, there were 13 FMAs in existence. They cover an area of almost 80,000 square kilometres —32.8 per cent of the total area under licence to the forest industry in Ontario.

Another highlight of the 1982-83 fiscal year was the ministry's acquisition of two Canadair CL-215 waterbombers—the state-of-the-art firefighting aircraft. The two planes will greatly improve the ministry's ability to respond quickly and effectively to forest fire emergencies, and will help us to achieve our forest fire management goals in Ontario.

During the 1982-83 fiscal period, we also provided incentives for mineral exploration and development. Significant gold mining operations at Hemlo and Sioux Lookout, in addition to exploration and development projects in other communities, have received assistance through the Ontario Minerals Exploration Program, the Hydrocarbon Energy Resources Program and the BILD-funded Exploration Technology Development Fund, to name just a few.

Hemlo, in particular, was a major bright light for the mining industry, and underlined the importance of the ministry's geological funding and research programs.

We have also encouraged community groups and interested individuals all across Ontario to take an active part in the Community Fisheries Involvement Program (CFIP). CFIP gives volunteers from local communities an opportunity to work with our resource managers to get important fisheries and wildlife projects done. Their response and support have been most gratifying.

The ministry's many program initiatives are vast in breadth and scope. Whether we talk about the development of a new provincial Floodplain Management Policy, the Green Paper on Private Land Forestry, the establishment of provincial Drill Core Libraries, the Ontario Basic Mapping Program or the breakthroughs we've achieved in remote sensing technology—we can be proud that MNR has continued to play a major part in ensuring that Ontario's natural wealth will be enjoyed and well-utilized now and into the future.

Looking back at what we have accomplished, I am very pleased with the ministry's performance in 1982-83. And I am looking forward to even greater achievements in the years to come.

Alan W. Pope

Deputy Minister's Message

The Ministry of Natural Resources, as such, has now been in existence for 10 years. They have been challenging, stimulating years—years in which we have developed a highly competent, extremely professional team. And, as the necessity of living with spending restraints continued to be an inescapable fact of life in 1982-83, the pressures on the MNR team have grown. It becomes an even greater challenge to continue delivering effective resource programs, and it makes us all rely more on our ingenuity and expertise.

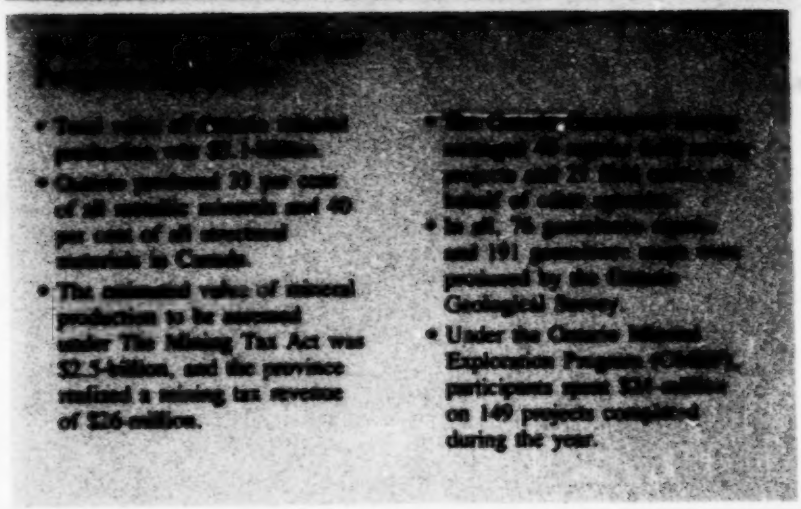
I'm very pleased to be able to say that MNR's team is meeting the challenges posed by the present economic climate, and I'm convinced that there's a good reason underlying our success: that reason is people.

MNR staff have continually demonstrated the ability to design imaginative and effective ways to deliver our programs efficiently to the people of Ontario. Some examples that come to mind are MNR's special employment programs, the development of comprehensive Crown land recreation policies, our forest access road policy, our contract tree seedling production, our many community fisheries involvement projects, our extension services to private woodlot owners, and the development of selective big game harvest programs.

Just citing examples of the ministry's many and varied programs hardly does justice to the hard work of the staff who make the programs possible. I am thinking here of the special efforts of not only our program delivery staff working with the public, but also of our planning and administrative staff, many of whom have spent the last fiscal year streamlining the areas of communications, affirmative action, the management information system and systems operation.

To serve Ontario well and to deal effectively with the daily challenges which we have so successfully met in the past, each of us must renew his or her commitment to carrying the ministry forward as a dedicated, innovative and exciting organization into the 1980s. I see evidence of that commitment by ministry staff every day, and I am sure that it will continue.

W. T. Foster



Left: MNR's Ontario Geological Survey hired and trained 114 summer field staff and students to perform mapping and other geological survey work during 1982-83.

OGS Mapping Helps to Find Minerals

How are mineral deposits formed? Where are they? How did they get there? These and other questions underlie the Ontario Geological Survey's (OGS) study of the province's surface and subsurface mineral resources. And the search for knowledge about valuable minerals—and for the answers to these questions—continued during 1982-83.

In 1982-83, 55 teams in all performed mapping work for the ministry's OGS program—35 field survey teams and 20 special project teams. Because only a small percentage of Ontario is mapped to detailed-scale standards at present, the need for OGS's mapping program is vital. Modern maps of the province's mineral resources are invaluable to resource managers and mineral explorers alike.

Nearly two-thirds of the 114 summer field staff and students hired and trained by the ministry took part in Precambrian mapping programs in 1982-83. The students increased not only their practical geological knowledge, but also OGS's ability to meet its 1982 mapping targets.

The geological surveys produce maps and earth science data for two major user groups—the minerals exploration industry and the land use planning community. The surveys help industry explore for metals, construction materials and fuels, and also assist land planners in the formation of long-range land use plans.

Another group of mapping programs was more frontier-oriented. MNR teams performed basic mapping of extremely remote and inaccessible areas. A project was undertaken in the Meen Lake area, for example, which is about halfway between Pickle Crow and Red Lake. The project was the first year of a multi-year study which will map volcanic and sedimentary rocks of this remote area.

Another project looked at the ancient environments in which the Precambrian carbonate rocks in the Grenville geological province (in southern Ontario) were deposited. The team studied the role of stromatolites—algae, to non-specialists—in the origin of these rocks.

The results of the Grenville study will assist exploration geologists to determine mineral deposit environments in this area of southern Ontario, which until now has remained mostly a geological mystery. The area is a potential source of zinc, lead and other minerals.

In 1982-83, there were several projects to facilitate the use of geophysical data. A test range was established in the Night Hawk Lake area and is already being used by major geophysical companies to calibrate and check their equipment. Results of gravity studies in the Cobalt area were processed to derive the configuration of hidden igneous rocks in the area.

Detailed summaries of all of 1982's OGS field surveys were published under the title, *MP 106: Summary of Field Work, 1982*, in December of 1982.

Left: In August, 1982, MNR hosted a delegation of industrial minerals specialists from the People's Republic of China. Here, the delegation visits the Toronto Brick Company.

Right: Geologists with the federal-provincial Southern Ontario Geological Survey (SOGS) take rock samples during one of the eight geological survey projects undertaken.

Special OGS Co-operative Projects

During the summer of 1982, 20 additional field parties surveyed and evaluated local mineral resources across Ontario. The funds for these projects were provided by a number of different agencies, but OGS managed all the projects.

Eight projects were carried out under the Southern Ontario Geological Survey (SOGS) program, which is jointly funded by MNR and the federal Department of Regional Economic Expansion (DREE) under the Eastern Ontario Subsidiary Agreement.

Five projects were funded by the Ministry of Northern Affairs through the Northern Ontario Geological Survey (NOGS) program.

Four studies—on uranium deposits, gold mineralization, quaternary deposits and basal till—were made as part of the Kirkland Lake Initiatives Program (KLIP). This program is equally funded by the Ministry of Northern Affairs and DREE under the Community and Rural Resource Development Subsidiary Agreement. An unexpected bonus from this program was the discovery of kimberlite—the source rock for diamonds—in the Kirkland Lake area.

A study of the availability of silica sand and clay took place during 1982-83 with funding from the Ontario Ministry of Northern Affairs, under the Northern Industrial Mineral Survey (NIMS).

Two additional Precambrian mapping projects were made possible with funds from the federal and provincial governments under the Northern Ontario Rural Development Agreement (NORDA).

Aggregate resource inventories were undertaken during 1982-83 in 20 townships in southern Ontario. MNR is outlining and assessing these aggregate resources so that municipalities can use them more efficiently. In the past, aggregate deposits have been lost because some land use plans overlooked their potential. This resulted in a locality having to bear the brunt of higher costs of transporting aggregate into the area. Locally supplied aggregate reduces construction costs and planned rehabilitation of the source area means that land can be put to other useful purposes after the aggregate operation is finished.

Some of That Which Glitters is Gold

When most people think of a gold mine, they think of grizzled prospectors sifting their pans in the Klondike, or of Humphrey Bogart swinging his pick-axe in the Sierra Madre. Gold mining is not quite as romantic as it is usually made out to be, but its profitability is not exaggerated.

In 1982, a large and significant gold deposit was outlined in Ontario at Hemlo, on Highway 17, just west of the junction with the Manitouwadge highway. It has been estimated that by 1987, the Hemlo operation could be producing more than 9.3 tonnes (about 300,000 troy ounces) of gold per year. This would make Hemlo one of Canada's major gold camps.

The excitement engendered by the Hemlo gold find continued the surge in prospecting and development activity in Ontario. The current staking rush, which began in 1980, has become the fourth largest in the province's history. The rush continued in 1982, with over 33,000 claims staked. Gold was certainly the brightest light on the Ontario minerals horizon during 1982-83.

Ministry publications produced by OGS were used as practical tools by those involved in the Hemlo discovery. Particularly useful were a mineral deposit circular dating from 1981 and a 1979 preliminary map. As well, funding under the Ontario Mineral Exploration Program (OMEP) proved to be another practical aid which was used to advantage by three of the companies involved in Hemlo.

The Hemlo experience underlined the danger of writing off an area with respect to minerals, even after years of exploration. At Hemlo, 15 individuals and five companies had spent 37 years investigating the area's potential before the present developers struck paydirt.

Spurred on by Hemlo's success, the ministry continued to study many other gold-bearing areas—areas where gold has been found in the past and which are now being reinvestigated to determine their present potential. MNR also continued to identify and record Ontario's mineral resources for the long and short-term purposes of its strategic land use planning.

Construction Continues at Detour Lake

Detour Lake, about 200 kilometres northeast of Timmins, was also the scene of continuing prospecting and develop-

ment during 1982-83. Construction and open-pit mining are under way at the Detour Lake project, with the start up of underground operations anticipated by 1987. Detour Lake could become the second-largest gold-producing area in Canada. By 1988, the combined output of Hemlo and Detour Lake will probably double Ontario's present gold production.

Spreading the Word: Mineral Resources Publications

Our publications will probably never make the top 10 on the non-fiction best-seller lists, but they are extremely popular in the mineral resources community. In 1982-83, MNR's mineral resources specialists produced more than 300 publications on the geology and mineral resources of Ontario—maps, studies, reports, papers, reprints, guidebooks and others.

MNR issues these publications each year to provide current geological information and news about the many factors affecting mineral resources development in Ontario. The documents are needed (and used) by a wide clientele—industry, other government ministries, agencies and universities—to keep abreast of current information and to maintain a good inventory of background data.

Policy makers also use our publications to develop views on Ontario's resource potential in the context of world markets and trends. In the resource policy and planning sphere, effective decision-making depends upon a comprehensive grasp of the technological, environmental and economic factors that affect the mineral resources sector.

A number of publications in 1982-83 took advantage of recent technology to make important information available. A computer analysis of 1982 statistics for Ontario's mineral industry, the *1982 Ontario Mineral Score*, used a laser printer linked to MNR's Queen's Park computer. A more recent development is the Geoscience Data Inventory Folio (GDIF). During fiscal 1982-83, 37 of the Folios were produced, with many more to come. The series replaces the former Data Series Maps. The Folios' advantage is that they can be readily updated—their standardized page layout makes the addition of information simple.

Each Folio consists of a concise summary of all known exploration data for the area covered by the Folio. The summaries are accompanied by location maps showing mining claim group boundaries. There are also exploration data maps showing the location of mineral occurrences, drill holes, geophysical anomalies and other relevant data.

The Folio maps are at 1: 31,680 scale, the same as that used for mining recorder claims maps and OGS colored geological maps. Now, for the first time, these three closely-related publications have a common scale, making them highly compatible, and thus even more useful to those whose business activities require them.

Putting the Public in the Picture

During 1982-83, MNR's mineral deposits specialists presented more than 70 talks and displays at public forums all over Ontario.

One highlight presentation was a three-hour symposium on gold—"The Geology of Gold in Ontario"—given at the Geoscience Research Seminar in Toronto in December, 1982. The symposium was attended by 600 people, and was very well received. The talks at the symposium included presentations on Invisible Gold (sub-microscopic particles of gold); computer software for interpreting earth science information; and the applicability of our knowledge of southwestern U.S. gold deposits to the Ontario situation. The speakers came from MNR and various universities. The published proceedings of the symposium—with an initial run of 3,000 copies—sold out almost immediately.

Our Geological Experts Share Their Knowledge

What's the point of having knowledge unless you share it? Many information-sharing sessions were organized during 1982-83 by OGS geologists to transfer their knowledge to industry and to the academic community.

During 1982, OGS staffers gave 142 talks and arranged and conducted some 56 field trips for groups ranging from international scientific delegations to local prospectors' associations.

About 100 invited guests participated in a provincial update on gold in Toronto in March of 1983. Dubbed the Pentrillium Conference (after a parallel U.S. conference which meets each year—the Penrose), the delegates came in roughly equal proportions from industry, and from government and universities. In late

March, 1983, a two-day gold sampling seminar was held in Kirkland Lake.

MNR staff also played host during 1982 to a delegation of five industrial minerals specialists from the People's Republic of China. The delegation, which arrived in August, was introduced to industrial minerals and mineral aggregate activities in both Ontario and Quebec during its three-week visit.

Geoscience Research Grants Surpass $2-million in Five Years

In 1982, grants totalling almost $500,000 were awarded to seven universities for 22 research projects under the OGS Geoscience Research Grant program. The awards brought the program's five-year total expenditures to more than $2.3-million.

The grants support projects of up to three years' duration, which are of interest to Ontario's mineral development and exploration industry. At the Geoscience Research Seminar last December, more than 750 registrants heard papers summarizing the research performed by the grant recipients.

BILD Funds Close to $1-million in Exploration Technology Development

In the fiscal year ending March 31, 1983, the ministry's Exploration Technology Development Fund (ETDF), which is administered by OGS, awarded grants totalling $984,938 to 16 Ontario-based companies. The funding was provided by the province's Board of Industrial Leadership and Development (BILD). BILD is the Ontario Cabinet committee which consolidates and co-ordinates implementation of the government's economic development strategy.

The research grants were for applied research and development leading to the manufacture and marketing of equipment, techniques and facilities which will promote efficiency in mineral exploration.

At the Geoscience Research Seminar in Toronto, in December, 1982, ETDF grant recipients delivered papers and set up displays of their work. In the two years of ETDF's existence, 29 firms have received almost $2-million in grants towards the development of exploration technology.

Second GOMILL Agreement Signed

Thanks to funding from the province's BILD program, the second GOMILL (the Test/Custom Gold Mill Project) was signed during 1982-83 with Goldlund Mines Ltd. for a property in Sioux Lookout. The company is now constructing a custom milling facility.

Under the agreements, BILD will provide an interest-free, five-year forgivable loan to entrepreneurs who cannot build their own mills because of insufficient capital or volume of proven ore. GOMILL is designed to allow bulk sampling to give a better indication of grade and to see if there are any metallurgical processing problems.

BILD-funded Hydrocarbon Energy Resources Program on Target

The BILD-supported Hydrocarbon Energy Resources Program completed all activities as planned during the 1982-83 fiscal year. The projects promote the assessment of Ontario's lignite, peat and oil shale, petroleum and natural gas resources, stimulate private sector development, and may contribute to the province's energy self-sufficiency goals.

Three main projects dealing with the province's peat resources were undertaken—completion of peat inventories in the Hearst, Armstrong, Pembroke and Peterborough areas; testing of remote sensing methods for peatland mapping; and investigation of peat chemistry in selected wetland areas of northeastern Ontario.

In addition, 32 drill holes in the Chatham, Sarnia and Port Stanley areas were completed, to determine the potential of oil shales in these areas. The drill holes produced some 4,267 metres of drill core. Special projects were commissioned at the Universities of Waterloo and Toronto to examine the drill cores.

Seven drill holes for lignite (brown coal) resource assessment were completed in the remote Moose River Basin of the James Bay Lowland. Not much is known about the subsurface geology of the area, and geologists want to find out how the lignite-bearing sediments are distributed in order to make an evaluation of lignite as a potential energy resource. Lignite deposits were found in two of the holes.

Below: MNR is establishing provincial Drill Core Storage Libraries so that the valuable information contained in cores like these will be on record and available.

Industrial Mineral Grants Offered by BILD

Under the Small Rural Mineral Development Program, the Board of Industrial Leadership and Development (BILD) offered $3.37-million in grants to five companies during 1982-83. The grants will encourage overall capital expenditures of at least $14-million. They will be used to expand a dolostone production operation on Manitoulin Island, and to develop a granite quarry with a cutting and polishing operation, as well as assist a talc operation and a calcium carbonate plant in eastern Ontario. The program also offered a grant to expand a talc operation near Timmins.

Under the program, the province offers grants of up to 25 per cent of eligible capital costs to businesses seeking to expand or to establish new industrial mineral operations.

OMEP Encourages Big Exploration Year

Last year's Ontario Mineral Exploration Program (OMEP) was very active. During 1982-83, 149 OMEP-assisted projects were completed—almost triple the number of the previous year. Total expenditures by participants were $24-million and total benefits disbursed amounted to $4.7-million.

Under the program, the government provides incentives of up to 25 per cent of eligible exploration expenditures to qualifying operations. Factors contributing to last year's increased pace of exploration included lower inflation and interest rates, renewed speculation in gold and the stimulus provided by the successful gold strike at Hemlo, Ontario.

Mining Taxation Revenues Down

The 1982-83 mining tax revenues in Ontario were $26-million, less than half the amount collected during 1981-82. Though some areas of the mining industry experienced losses, there were some which did exceptionally well: gold, uranium and industrial minerals. The lower 1982-83 tax revenues can be attributed to the overall economic sluggishness of the year and world mineral markets.

Read Any Good Drill Cores Lately?

What do you get when you drill hundreds of metres into bedrock with a diamond drill? You get a drill core—a cross section of the below-surface geology of the rock you've drilled. The information interpreted by geologists from drill cores is crucial to a company exploring for minerals. What's more, the information is very expensive to obtain.

In the past, drill cores, and the information that they contain, were often casually placed in boxes and left on the ground in the area of the drilling site. As a result, primary and subsequent exploration information was often lost or damaged. Later, many prospects had to be re-drilled at a considerable cost in time and money.

To get around the problem of storing drill cores and to make the drill data collection system in Ontario more efficient, MNR has developed a program to establish Drill Core Libraries. During 1982-83, construction work continued on the first three storage facilities, at Timmins, Kirkland Lake and Sault Ste. Marie.

The storage libraries will save time and cut costs for the whole industry, at the same time as they help improve the overall quality of exploration.

The libraries are being funded by the province's Board of Industrial Leadership and Development (BILD) at a total estimated cost of $5-million.

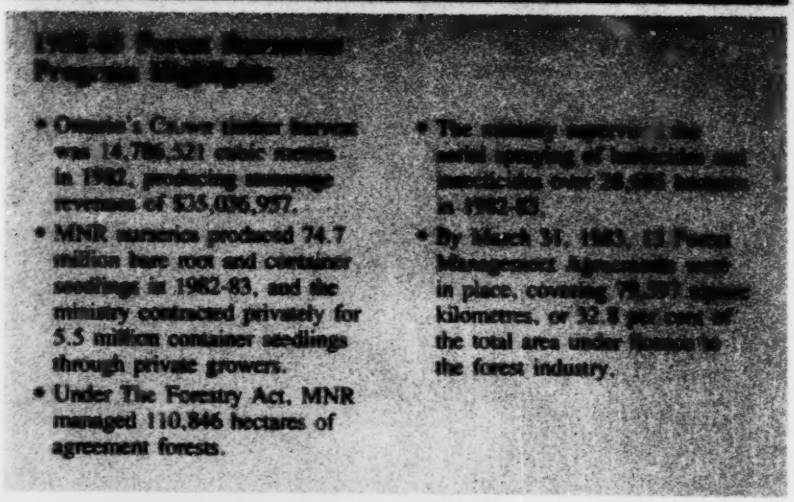
Ask Your Friendly Neighborhood Geologist —Anything

During fiscal 1982-83, Ontario's 14 regional and resident geologists had a very busy year. They fielded hundreds of questions about earth science from the public, gave seminars, prepared Geoscience Data Inventory Folios, conducted field trips, gave lectures—all in a day's work for them. The geologists are stationed in 14 locations throughout Ontario, and they function as key links between MNR and the citizens of Ontario.

Every regional and resident geologist's office contains a library of both published and unpublished reports. Here, the public, as well as members of the geological community, have access to MNR publications; publications of other government agencies; records of exploration activity submitted for assessment work credit; company prospectuses and reports from the files of the Ontario Securities Commission.

With the continuation of the three-year staking rush in Ontario, the geologists had a busy year. But—as hundreds of people found out in 1982-83—the resident and regional geologists are never too busy to assist the public, the geological community, or anyone else interested in earth science information.

Forest Resources Management


Program Highlights
• Ontario's Crown timber harvest was 14,788,521 cubic metres in 1982, producing stumpage revenues of $35,036,957.
• MNR nurseries produced 74.7 million bare root and container seedlings in 1982-83, and the ministry contracted privately for 5.5 million container seedlings through private growers.
• Under The Forestry Act, MNR managed 110,846 hectares of agreement forests.
• By March 31, 1983, [illegible] Management Agreements were in place, covering [illegible] kilometres, or 32.8 per cent of the total area under licence to the forest industry.

Left: Ontario's forest industry provides direct employment for some 80,000 people.

Close to 10,000 and Still Counting

Since the passage of The Woodlands Improvement Act (WIA) in 1966, MNR has been providing the advice and assistance of skilled foresters and forest technicians to the private woodlot owners of Ontario. By March of 1983, there were close to 10,000 WIA agreements in existence—an impressive testimonial to the program's success.

Under these WIA agreements, MNR staff advise on such things as suitable species for growing; thinning, pruning and tending measures; soil erosion problems; and wildlife cover. The ministry will also plant new trees for the owner—who pays for them and protects them.

To ensure the continuing success of these partnerships, MNR wants to keep up to date on private land forestry issues that affect all the citizens of Ontario. In 1981-82, MNR surveyed 12,400 rural private woodlot owners to gather information on the various present uses of private woodlands, as well as on what woodlot management activities, if any, are currently taking place.

The results of the survey were published in early 1982 under the title, *Rural Lands and Landowners of Ontario: A Private Land Forestry Perspective.*

During 1982-83, ministry foresters participated in a public discussion on the report's findings. They also produced a Green (background) Paper on private forestry, entitled *Private Land Forests: A Public Resource*, in October of 1982. The two documents provided a focus for an active and informative public discussion.

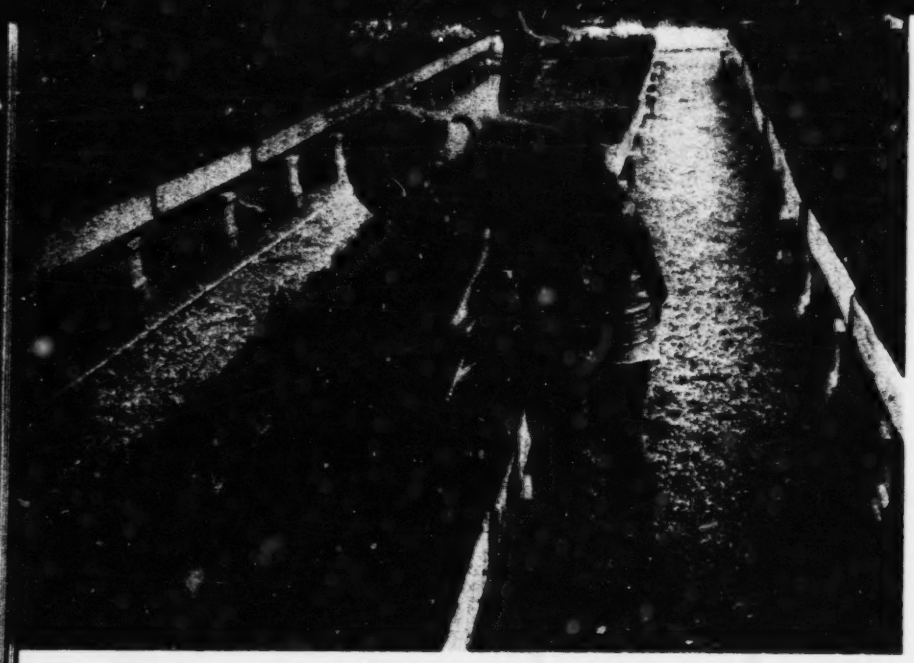
To get a wide cross-section of opinions and ideas about private land forestry, information was sought and obtained during 1982-83 from the public, from other government ministries, and from agencies and universities. MNR also encouraged and received written submissions from interested parties. In all, some 15 public forums were held across Ontario to gauge the public pulse on private woodlots and forestry.

What resulted was an impressive amount of information. This information will be analysed in 1983-84, and will be used to formulate MNR's recommendations in a White (policy proposal) Paper on private land forestry.

Nine New Container Seedling Contracts Signed

Anyone who has ever planted a garden knows what a back-breaking job it can be. Imagine planting some 55 million trees. That's the combined annual output of container stock produced by the Ministry of Natural Resources and the private seedling growers with whom it has contracts. In fiscal 1982-83, nine new contracts were signed, raising overall capacity by 13.4 million seedlings a year.

Why all the interest in growing trees? The answer is that the tree seedlings are needed as an indirect result of another MNR program—Forest Management Agreements (FMAs). These are agreements between the ministry and forest companies for harvesting, replanting and other silvicultural work in areas



Left: MNR nurseries produced 74.7 million bare root and container seedlings in 1982-83.

in which the companies are operating. With almost 80,000 square kilometres of producing forests now covered by FMAs, there is a huge demand for tree seedlings.

The province of Ontario's Board of Industrial Leadership and Development (BILD) has provided funds over the past two years for expanding existing private nursery facilities and developing new ones. The facilities are located throughout Northern Ontario, close to the forests being harvested by the industry. As of March 31, 1983, BILD has an estimated capital investment in the program of more than $3.5-million. The 1982-83 BILD contribution was just over $2-million.

The nine new contracts bring the number of existing contracts to 15. The combined efforts of MNR nurseries and contracted private growers produced some 80 million bare root and container seedlings during the year.

New Black Spruce Seed Orchards

Not just any old seed will do when it is being used to replant a productive forest after harvesting. If there's a need for forests that will grow quickly, have trees with the right size, shape, disease resistance and wood quality, they must start from superior seeds. A seed orchard is a place for producing seeds with these desirable qualities.

In 1982, 11 new black spruce seed orchards were planted in MNR's Northwestern Region. The orchards will provide a continuous source of desirable seeds for regeneration in years to come. Eventually, some of the seeds will be stored at the province's main seed depository, located in the village of Angus, just outside Barrie.

It will be a good 10 to 15 years before these orchards can produce enough black spruce seeds for collection. But when they do begin to produce, the seeds will have the special qualities MNR foresters have been looking for. The trees which will grow from the seeds will be bigger, and of better form.

The White Spruce Cone Harvest: it Was a Very Good Year

Timing is crucial in the harvesting of white spruce cones. The seeds remain in the cones for only a few days after the cones have ripened. In 1982, MNR monitoring and a touch of technology combined to ensure that our regeneration targets for white spruce will be met in the future.

The ministry constantly monitors cone development and production in Ontario's forests. The regeneration of evergreen forests depends on it. In 1982, in our Northern Region, there was a bumper crop of white spruce cones for the first time in 13 years. Our monitoring really paid off. We were able to take full advantage of nature's bounty.

To harvest the white spruce cones, MNR had to move quickly. The Fandrich Cone Harvester helped the effort considerably. Developed in British Columbia as a way of harvesting cones in inaccessible areas, the Fandrich machine has to be suspended from a helicopter.

A mesh cage-like device—which contains an interior funnel with slats in its sides—is lowered over a tree and then hauled back up.

In the process, the tree's branches are caught in the funnel's slats, which strip the cones off the branches. When the machine leaves the tree, it takes with it the cones which contain the precious seeds.

Not all the spruce cones, of course, were harvested in such an ingenious and highly technological way. Most of them had to be obtained in the traditional manner—by hand. What counts, however, is that the prodigious bounty of the 1982 white spruce cone crop was not wasted.

TSI-NOW Focuses on Progress

Imagine trying to keep track of more than five billion tree seeds by hand, on index cards. That was what MNR's staff faced every time an inventory had to be made at Ontario's main tree seed depository. Fortunately, a great leap forward was made in the filing and inventory system at the depository last year.

The new system has made life a lot easier for those whose task it is to keep track of the province's available tree seeds. Reports of amounts of seed in storage, seed germination test results and shipment records formerly took several weeks to prepare. The TSI-NOW system can provide these reports, as well as other, more sophisticated kinds of statistical information, within a matter of a few minutes.

The new computerized inventory program now provides the ministry's silviculturalists with a complete, up-to-date and accurate record. The depository contains over five billion seeds from over 60 different species. The seeds are kept in cold storage until they're needed for direct seeding or for growing nursery stock.

The TSI-NOW program is stored in the ministry's Queen's Park mainframe computer, with smaller terminals at the depository and at Main Office. All available data is immediately accessible "on screen". TSI-NOW is a completely interactive system, allowing its users to "talk" to it. And the fact that it is written in FOCUS means that our forest resources experts can obtain visually effective graphic displays, complicated calculations, and comparisons of virtually any on-line sets of statistics within an amazingly short time. The program is proving invaluable in the preparation of detailed statistical reports, inventory control plans and statistical tables.

Five New Forest Management Agreements Signed Last Year

Development and extension of the ministry's Forest Management Agreement (FMA) program continued last year. The agreements provide for the harvesting and regeneration of the forest in which a company is working, as well as for the undertaking of all silvicultural work—site preparation, regeneration and tending. The silvicultural treatments are paid for by MNR.

In 1982-83, five new FMAs were signed, bringing to 13 the total number of existing agreements. One of the new agreements, with Waferboard Corp. Inc. for the Romeo Malette Forest, was the first Forest Management Agreement between the ministry and a non-pulp and paper company. The other FMAs were for the Pineland Forest with Pineland Timber Co. Ltd.; and the Nagagami Forest with Ontario Paper Co. Ltd.; the Manitou Forest with Boise-Cascade Canada, and the Seine River Forest, also with Boise-Cascade Canada.

In 1982-83, the province's Board of Industrial Leadership and Development (BILD) provided close to $7-million to assist in constructing access roads and carrying out silvicultural operations under the agreements.

By the end of fiscal 1982-83, the 13 FMAs covered 79,597 square kilometres of productive forest, or 32.8 per cent of the total forest area under licence to companies operating in Ontario.

A company that has entered into an FMA prepares management, operating and annual plans which are subject to MNR approval. Both the management and operating plans undergo a public review, and must be in accord with the ministry's strategic land use planning goals. Those goals reflect a truly comprehensive approach to forest management. The ministry's objective is to manage Ontario's forests for the greatest benefits to both the tenants (the forest industry) and the owners (the people of Ontario).

AFIP Spells Jobs for the Forest Industry

The forest industry provides direct employment for 80,000 people in Ontario, with a 1982 total value of shipments of $7.9-billion. But in the past year, worldwide economic problems have meant tough times for many of Ontario's forest industry workers. Many were laid off, putting families, communities—even entire regions—under a great deal of stress. To provide jobs and keep these workers from leaving communities, MNR initiated the Accelerated Forest Improvement Program (AFIP) during 1982-83, with the cooperation of the Canada Employment and Immigration Commission (CEIC).

The program utilized Section 38 of the Unemployment Insurance Act, and offered laid-off forestry workers an incentive bonus, coupled with their unemployment insurance payments, to work on forest improvement projects in their communities. AFIP has helped forestry-dependent communities to retain skilled workers, to maintain payrolls, and to sustain much of their social and economic vigor.

A total of 1,361 laid-off forest industry workers were recalled last year, to work on some 89 company-sponsored projects under AFIP. They performed almost 19,000 work-weeks of labor—site preparation, tending, silvicultural support, timber and forest management, fire training and protection, as well as product salvaging. (Almost $300,000 worth of wood products were salvaged last year under AFIP.)

The province's Board of Industrial Leadership and Development (BILD) fund provided approximately $5.5-million to AFIP for this work. The program's first-year success promises well for the future and is an excellent example of how MNR's programs respond to practical needs.

BILD Assists New Waferboard Facility in Englehart

A $3-million grant from the province's Board of Industrial Leadership and Development, in addition to a $5-million provincial loan guarantee, led to the official opening—in July, 1982—of the Grant Waferboard mill in Englehart. The funds were part of a $12-million federal-provincial package to assist the creation of the $30-million facility.

Waferboard is a composite lumber product used mainly in construction. It is manufactured from poplar, which has traditionally been considered a low-grade lumber species. In recent years, waferboard has started to compete with construction grade plywood for a share of the market—to the extent that more than two dozen new waferboard mills have been constructed in Northern Ontario over the last few years.

The Grant mill in Englehart created hundreds of jobs in the area. There were 175 new jobs in the plant alone, between 210 and 240 new forestry jobs (to supply the mill), and 25 jobs in transportation.

MNR Researchers Develop a Grammar of the Forest

Thanks to the results of a four-year research program in which MNR played a major part, Ontario foresters will soon be speaking the same language when they describe forest ecosystems. Foresters, as do biologists, use Latin names to identify vegetation types and tree species. But when it comes to describing forest ecosystems—the exact type of prevailing vegetation and soil conditions of an area—a kind of Babylonian division of tongues has always existed. The Forest Ecosystem Classification Technique—a kind of forestry grammar—will change what up to now has been a major source of confusion for everyone involved in forestry.

Begun in 1979, the research project involved scientists from MNR's Ontario Tree Improvement and Forest Biomass Institute (OTIFBI), the ministry's Northern Region Forest Ecologist, and scientists from Agriculture Canada, the Canadian Forestry Service and Environment Canada. The research team was supported by funds from each participating group as well as by funds from the MNR/DREE Forest Management Subsidiary Agreement.

During 1980, the team collected data and then used state-of-the-art computer techniques to analyse the information. Among other variables, they looked at correlations between types of vegetation—trees, shrubs, mosses, and all other forms of plant life. They also examined types of soil conditions, including soil quality, classification, drainage and aeration, as well as mineral and organic content.

The result of these studies was a method of classifying forest ecosystems using scientifically reliable criteria. The classification system will be of great use to all those who are interested in forestry, but will also help logging companies to plan pre-cutting activities. The system enables foresters to specify forest types with precision, and consequently, what silvicultural prescriptions will best suit an area. Harvesting, and especially regeneration techniques, can now for the first time be keyed directly and specifically to the forest type which they will suit.

For example, the classification system can be used to make decisions on whether to clear cut or strip cut a forest. Similarly, the system can be used as a basis for deciding whether to let a forest grow back naturally or whether some form of artificial seeding or planting would be best.

A handbook for the foresters using the system was completed in draft form during 1982-83. The book will be produced with plastic pages, so that foresters can use it in the field in all weather conditions.

So far, about half of the claybelt area of MNR's Northern Region has been studied, though the research team plans to expand its work to include forest ecosystem information for all of Ontario. Foresters in our Northern Region are already making silvicultural prescriptions about harvesting forests based on the new classification system. Response to the new system has been enthusiastic, and several of the province's major pulp and paper companies have decided to begin using it immediately.

The Forest Resources classification techniques developed co-operatively by the Ministry of Natural Resources will herald a new age in forest management planning and operations. As more and more information about forest types is gathered, the ecosystem classifications—each one like a filing cabinet—will expand and be adapted to accommodate the new data. At the same time, Ontario's forest resource management, planning and operational efficiency will grow.

Working to Control Forest Pests

The spruce budworm remained the most widespread and destructive forest insect in Ontario throughout 1982-83. However, the overall area which suffered moderate-to-severe defoliation from the budworm decreased by more than half from the previous year, to just over eight million hectares.

During 1982-83, MNR carried out aerial spraying against spruce budworm over a total of 3,425 hectares in the Hearst, Kapuskasing and Temagami vicinities. Non-chemical insecticides

Left: Under The Forestry Act, MNR managed more than 110,000 hectares of agreement forests in 1982-83.

Right: Ontario gave one of MNR's two-year-old hybrid poplars to the federal government on Sun Day—June 21, 1982—as a symbol of the two governments' commitment to developing renewable energy technology.

were applied to 90 per cent of the areas treated, which included commercial forests, two provincial parks, spruce plantations, seed production areas and an overwintering yard for moose.

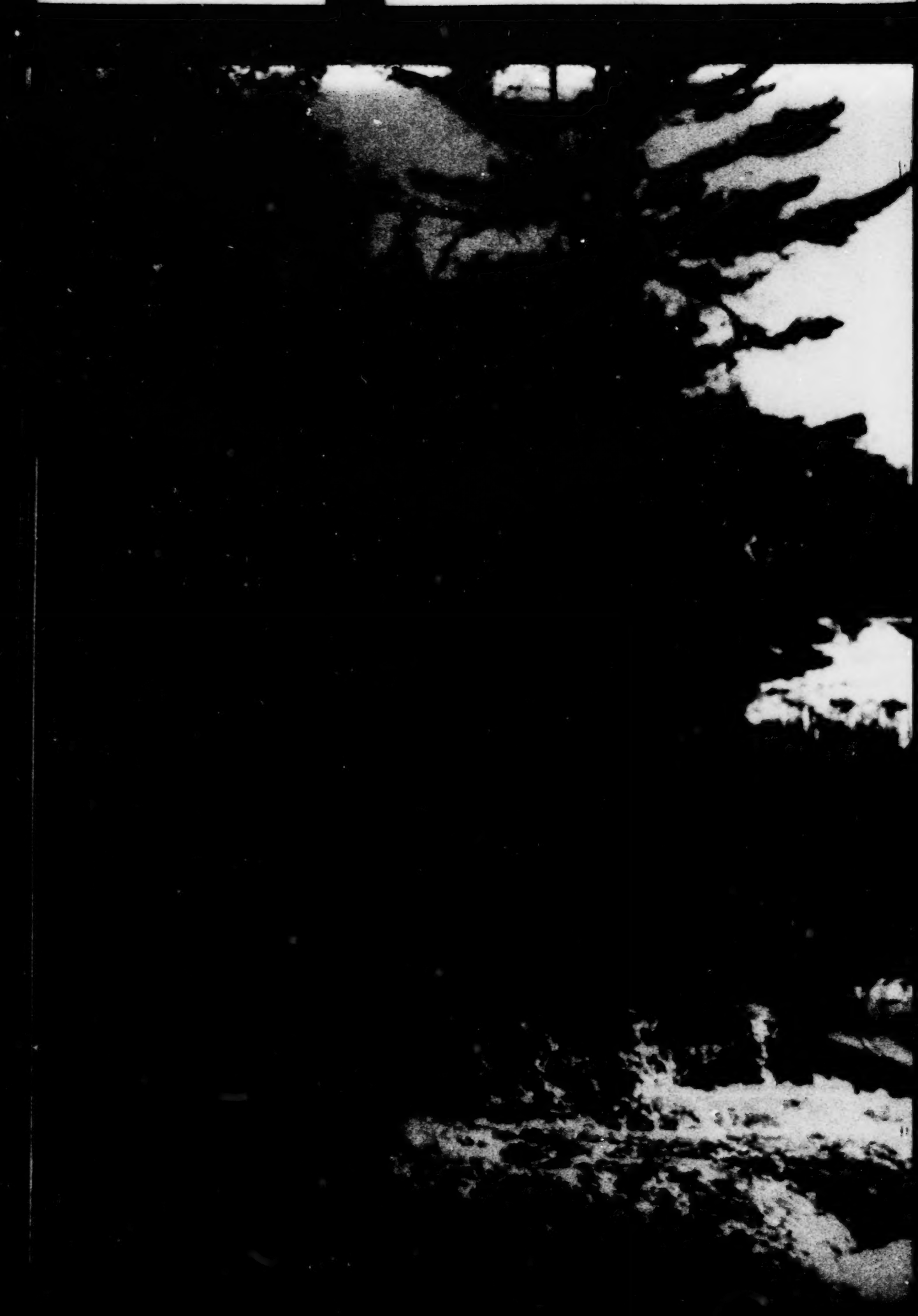
At the same time, the ministry's program to find a biological control method for budworm continued. The major developments of last year's program were techniques for mass-rearing and aerially releasing *Trichogramma minutum*, a tiny budworm egg parasite.

MNR also conducted a successful aerial spraying program over 402 hectares of mixed-oak forest in the Kaladar area to curb the spread of the gypsy moth, which has defoliated trees in eastern Ontario. During 1982-83, a federal-provincial committee was formed to develop a strategy for managing the gypsy moth in Ontario.

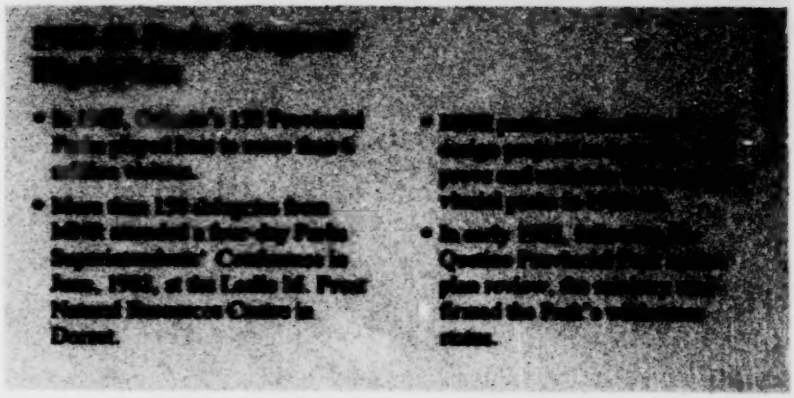
For the second consecutive year, the MNR-Canadian Forestry Service co-operative program conducted aerial and ground surveys to detect the destructive European strain of a disease known as Scleroderris canker. To date, the fungus has not been found in eastern Ontario pine forests.

The root rot fungus *Cylindrocladium* has posed a problem recently in several southern Ontario nurseries. During 1982-83, MNR initiated a detailed study to evaluate nursery losses, mortality among planted seedlings and the effectiveness of soil fumigants in combating the disease.

One of the major factors limiting the survival and growth of new forests is the intense competition trees have from other vegetation. To ensure that the trees have the best opportunity for light, moisture and nutrients during crucial early growth, other vegetation such as grasses, brush and weeds is suppressed by the use of herbicides. During 1982-83, 34,660 hectares of young regenerating forests were treated. MNR conducted two-thirds of this spraying, while the remaining one-third was done by pulp and paper companies under Forest Management Agreements with the ministry.



Outdoor Recreation Management



Left: MNR's Conservation Officers are its front-line outdoor recreation management specialists.

Candidate Parks Identified Through Land Use Planning

District land use planning was one of the main activities for the ministry's staff during 1982-83, and our parks specialists were no exception. Parks representatives attended all the public meetings held in connection with land use planning, and fielded hundreds of questions from the public and special interest groups.

MNR staff evaluated the public reaction to a number of candidate provincial parks which had been proposed in the draft guidelines—wilderness parks, natural environment parks, waterway parks, nature reserves, recreational parks and historical parks.

The public input and other information is to be used to develop a final list of proposed provincial parks when the District Land Use guidelines are completed early in 1983-84.

Special Employment Program Gets Job Done

As in the mining, forestry, fishery and conservation authorities areas, the special employment program for parks was both popular and successful during 1982-83. The 95 parks projects completed provided 1,197 laid-off workers with 16,184 work-weeks of activity. Funds for the program were provided by the province's Board of Industrial Leadership and Development.

The work performed under the program was mainly labor-intensive maintenance and upgrading work—painting picnic tables and park buildings, brushing and clearing hiking and cross-country ski trails, painting signs, straightening posts in parking lots and along roadways—most of which would not have been possible without the assistance of the special employment program.

Many Provincial Parks Emphasize Ontario's History

Not too many tourists who visit Wasaga Beach are aware that, about 170 years ago, the beach reverberated with the sound of cannon fire. But visitors to the Museum of the Upper Lakes and the Nancy Island Historical Site—both features of Wasaga Beach Provincial Park—can relive the dramatic story of the HMS *Nancy* and the daring exploits of her crew.

During the War of 1812, the *Nancy* was requisitioned to carry supplies between Fort Michilimackinac and a base at the mouth of the Nottawasaga River. During August of 1814, the *Nancy* was hidden in the Nottawasaga River to escape marauding U.S. warships, but she was discovered and three U.S. warships started firing on her.

Outnumbered and outgunned, the *Nancy* caught fire, burned to the waterline and sank. The crew, however, escaped.

They sailed across Lake Huron by open boat, bound for Fort Michilimackinac. There they found the fort besieged by the same three U.S. warships. In a daring nighttime raid, the *Nancy*'s crew boarded the American vessels, captured two, and used them to rout the third.

Over the years, time, tides, and the weather took their toll on the remains of the *Nancy*, until MNR's parks staff stepped in. During 1982-83, work was completed on a structure which houses the bones of the *Nancy*. The climate-controlled building—really an environmental enclosure—provides viewing ramps and ports which allow visitors a unique look at history.

MNR's provincial parks staff have developed the *Nancy* site—and hundreds of other culturally and historically interesting sites like it across the province—as part of their continuing program to accent the cultural and historical heritage of Ontario.

Other Cultural Heritage Program Highlights

MNR staff also initiated several co-operative cultural heritage projects with other ministries during 1982-83.

For example, the Ministry of Northern Affairs funded the installation of a new interpretive display and the upgrading of the hiking trail at the Agawa Bay Indian pictograph site in Lake Superior Provincial Park.

The park's pictographs—pictures painted centuries ago on the rocky Lake Superior shoreline—are best visited when the lake is relatively calm.

The largest of the rock paintings at Agawa Bay commemorates the crossing of Lake Superior by about 50 men in four or five large canoes. According to the pictographs, the trip lasted four days, and was safely completed only by the intercession of Misshepezhieu, the great lynx and demi-god of the lake.

Also with MNA funding, Marten River Provincial Park's turn-of-the-century logging camp and museum were improved during 1982-83. The original camp is being reconstructed in order to give park visitors an idea of what life and conditions were like for Northern Ontario lumberjacks some 80 years ago.

And, under the Northern Ontario Rural Development Agreement (NORDA), a consultant's study was undertaken during 1982-83 to determine the economic feasibility of establishing a reconstructed 1920s clay belt farmstead in Greenwater Provincial Park, near Cochrane.

Not All Museums are Indoors

Logging originated in the Chapleau region in the 1880s, when the construction of the transcontinental railway through the area created a high demand for railway ties. Today, the early bush camps are rotting and overgrown, and lumberjacks' memories are fading fast. But at Wakami Lake Provincial Park, visitors are invited to experience the golden age of logging and share an important part of Ontario's heritage.

In the park, located between Chapleau and Sudbury, visitors can stroll along a forested path from display to display in an outdoor logging museum. In 1982-83, the museum's exhibits were protected by the construction of specially-designed shelters. The hiking trail was also improved by the addition of new interpretive displays and new descriptive texts for the exhibits. This work was aided by funds from the special employment program for parks.

At Murphys Point Provincial Park, near Perth, the special employment program for parks also made possible the renovation and repair of several historical buildings, part of a pioneer farmstead built inside what are now the park's boundaries. Not only are the farmstead buildings of historic interest, they also serve as a trail centre for the park's year-round hiking and cross-country skiing activities.

How to Make Time Stand Still

Petroglyphs Provincial Park, northeast of Peterborough, is the site of a number of rock carvings, or petroglyphs, which may have been made by Algonkian peoples or, as recently theorized, by Nordic explorers. The carvings are thought to be between 500 and 1,000 years old, and are a source of fascination to park visitors.

During 1982-83, MNR worked with the Canadian Conservation Institute on a study to identify the major causes of deterioration at the site, and to come up with some solutions to the problem. The study found that the carvings are deteriorating because of algae growth, erosion, frost damage and exposure. The petroglyphs are carved in a soft marble which the ancient artists found rather easy to manipulate. But the marble's softness also makes it highly vulnerable to the effects of nature. MNR is now considering several possible solutions—to preserve the site and minimize future deterioration.

Left: Ontario's 133 Provincial Parks hosted more than 6 million visitors in 1982.

Park Superintendents' Meeting a First

Ontario's provincial parks are vastly different in scope and nature. But the people who manage them have one thing in common. Parks superintendents are all extremely busy, and their responsibilities don't give them much time to get together. However, they did get an opportunity to meet as a group for the first time in June, 1982.

Over 150 delegates from the provincial parks, MNR districts, regions and Main Office attended a four-day conference at the Leslie M. Frost Natural Resources Centre in Dorset, to share mutual concerns and discuss common problems.

The conference featured panel discussions between the superintendents and user interest groups; workshops on customer relations and marketing strategies; plus in-service and training updates. Of special interest to the managers were an exhibit and trade show featuring the products of more than 50 companies dealing in parks-related equipment—tractors, cash registers, lawnmowers, electronics, chain-saws and other tools—in short, all the varied equipment and machinery necessary to run a provincial park effectively.

Spirit of Volunteerism Sweeps Parks

It's no secret that we live in difficult economic times. The Ministry of Natural Resources developed programs during 1982-83 which allow for much greater community involvement in natural resources areas than ever before. And MNR has discovered something: with the right kind of planning, government can often provide worthwhile programs to the public which are not necessarily at public expense—services which the ministry normally would not be able to provide.

Wherever Ontario's provincial parks system can benefit from the participation of interested, competent people—chances are that a corps of able volunteers is ready to help out.

Take the case of Fathom Five Provincal Park, on the Bruce Peninsula. The park's excellent underwater diving potential has long made it a favorite of diving enthusiasts and clubs. But demands on the park were so great that MNR was hard-pressed to keep up with them.

So MNR sought help from local diving clubs. These organizations agreed to provide volunteers to patrol the park and its waters, to give first-time divers orientation instruction, and to ensure that all park users meet the safety regulations. The volunteer program was made official in a formal agreement which was signed by the ministry and the Ontario Underwater Council.

During 1982-83, the Council provided more than 1,000 hours of volunteer service to the park, and was presented with an honorary scroll in March, 1983 in recognition of its efforts.

Other volunteer projects last year included work on park planning, visitors' interpretive programs and general park maintenance.

A special series of lectures on archaeology was also given at various provincial parks by a retired ROM staffer who volunteered his services.

We're Keeping Ontario's Provincial Parks First Class

Maintaining a high quality system of provincial parks in today's economic climate is not an easy job. In the last fiscal year, MNR parks staff undertook 113 design projects and completed 95—all for the upgrading, development and improvement of Ontario's provincial parks.

MNR parks staff established their project priorities by paying attention to the comment cards which visitors fill out. And most of the 1982-83 projects were at the top of the list of park users' priorities: adding hot water or showers to comfort stations; renovating park buildings; doing electrical installations and repairs; adding to or improving sewage and water systems; and improving park roadways. This work was assisted by MNR's regular summer student and junior ranger programs, and by the BILD-funded special employment program for parks.

1982-83 Wildlife Program Highlights

- Two sets of peregrine falcons were released from the Whitney Block at Queen's Park during the summer of 1982.
- The selective deer harvest program and a mild winter in 1982-83 proved beneficial to deer populations throughout central and Northern Ontario.
- More than 1,600 adult Canada geese were relocated to reduce the number of nesting pairs in the Toronto waterfront area.
- In 1982-83, the ministry completed a six-year study of the effects of cottage development on lakeshore properties.

Left: MNR's selective deer harvest program is designed to protect fawns and females in areas where there is stress on the population.

Relocating the Metro Geese

The revitalization of the Toronto waterfront in recent years has attracted lots of attention from tourists and city-dwellers alike. But it's not just humans who enjoy the waterfront area. Canada geese love it, too, because Metro's waterfront provides them with an ideal nesting and habitat site.

Usually, Canada geese are a welcome addition to any natural setting. But too many of them can be too much of a good thing, and as many as 3,000 have been counted along the Toronto waterfront at one time. This causes problems for the various agencies trying to provide clean recreational facilities along the waterfront.

The Ministry of Natural Resources, in co-operation with the Canadian Wildlife Service, Ontario Place and the Metro Toronto Parks Department, began management measures several years ago to relocate the Metro geese. The objective is to reduce the number of nesting pairs of Canada geese to about 50, by moving the excess geese and their eggs to other parts of Ontario, Canada, and the U.S., where Canada geese are not found.

In 1982, 578 goose eggs were collected and shipped to the Fort Frances and Pembroke Districts of MNR, as well as to Nova Scotia. In addition, 1,668 Canada geese were rounded up and sent to the Owen Sound and Huronia Districts of MNR, as well as to Arkansas and Ohio. This reduced the number of nesting pairs along the Toronto waterfront by more than 50 per cent.

Nongame and Endangered Species Program Broadens

MNR's nongame and endangered species program has evolved over the years into a truly comprehensive program. Its components include: identifying and assessing rare, threatened, or endangered species; developing management measures to protect threatened species; developing co-operative programs with other agencies; contracting research; and developing systems for data storage and retrieval. The program also conducts research and makes recommendations on matters regarding the development of nongame and endangered species policies.

In 1982, two sets of peregrine falcons were released from the Whitney Block at Queen's Park: two males in July and four females in August. In May, 1982, one of the four peregrines from last year's release project returned. The falcon was identified as a male—leg band number 1P9—and was later named "Whitney" by MNR staffers.

The falcon's return was an encouragement to the peregrine release project, which for several years has been attempting to re-establish a breeding population of this endangered species in Ontario.

MNR has also studied and developed management guidelines for such nongame species such as the osprey, the red-shouldered hawk, and the spotted turtle, to name only a few. In addition, the ministry has undertaken a status study of Ontario's snapping turtles, and has investigated the management requirements of the small-whorled pogonia, a highly endangered plant species.

Lakeshore Capacity Study Completed

Can loons be loved to death? What happens when people build cottages near the loons' habitat? Do the cottages destroy the environment of the very wildlife species which the cottagers have left the city to enjoy?

These and other questions received some answers in 1982-83 upon completion of a six-year study of lakeshore capacity requested by the Ministry of Municipal Affairs and Housing. MNR studied over 100 lakes and a wide variety of wildlife species—loons, deer, frogs, salamanders, hawks, songbirds and mink.

We discovered that loons can be loved to death. Often, when people approach loons too closely, it puts too much stress on the young birds. In an effort to escape, they will dive into the water and drown. No loon-watchers want this to happen, of course, but people are completely unaware that they pose such a threat to the birds.

The study also showed that when cottages are built on lakeshores, the buildings can remove or disturb nesting sites. And that's a sure way to reduce the loon population.

Cottage construction on lakeshores can reduce or impair other wildlife habitats, too. Mink, deer, and red-shouldered hawks are all adversely affected, while other species seem to find the lawns and open areas created by cottages ideal places in which to live.

After MNR staffers had analysed the results of the study, they developed a set of guidelines for cottage area development which would minimize the disruption to wildlife.

A computer model of all the factors which have to be considered in the development of cottages on lakeshore properties was also prepared. Now planners can test different cottage development activities and determine which ones are least damaging to local wildlife. The computer model is an effective new planning tool which can help conserve wildlife habitats and still let cottagers enjoy the natural outdoor environment.

Wildlife Brochure Useful to Hunters, Naturalists

In 1982, MNR's wildlife specialists prepared a revised edition of *Wildlife Management Areas in Ontario*, a brochure of interest to hunters and naturalists alike. It provides brief descriptions and maps of areas in southern Ontario which MNR manages for wildlife and outdoor recreation activities—hunting, wildlife viewing, photography, hiking, archery, trap-shooting, cross-country skiing and berry-picking. The booklet also describes the two kinds of wildlife management areas that have been developed in southern Ontario by the ministry: Provincial Wildlife Areas and Wildlife Extension Landowner Agreement Areas.

Provincial Wildlife Areas are open all year and most of them permit hunting during the open seasons. Six of these areas are inside provincial parks, where waterfowl or pheasant hunting is allowed, but where other activities may be restricted.

Wildlife Extension Landowner Agreement Areas are privately owned but maintained co-operatively by the landowners and MNR. The owners permit public access to the wildlife resources on the property in return for the ministry's assistance with wildlife management. Some of these areas have been developed exclusively for wildlife viewing. Hunting is permitted in the rest except within zones which are posted with "No Hunting" signs.

Booklet Available on White-tailed Deer

MNR specialists also revised and updated the booklet, *The White-Tailed Deer in Ontario*, in 1982-83. This 35-page booklet describes the life history, biology and habitats of this popular game species. The delicate natural balance between the deer, their natural predators and man is also discussed. The new booklet details MNR's selective deer harvest program which is designed to protect the breeding female segment of the herd and thus allow the herd to increase closer to the carrying capacity of the deer range.

The White-Tailed Deer in Ontario is not only helpful to hunters, but also to naturalists, conservationists and students. It contains photographs and tables, as well as a map of the distribution of the white-tailed deer in Ontario. The brochure can be obtained by contacting the Communications Services Branch of the Ministry of Natural Resources at Queen's Park, MNR district offices across the province, and the Ontario Government Bookstore.

Left: Waterfowl habitat improvement projects were an important part of MNR's special employment program for fisheries and wildlife.

Sommaire du rapport annuel

du Ministère des Richesses naturelles pour l'exercice terminé le 31 mars 1983

Message du ministre

Alors que je passe en revue les nombreux résultats obtenus au cours de l'année budgétaire 1982-1983, je suis heureux de constater que nous avons continué à réaliser d'importants programmes portant sur les ressources naturelles tout en en créant bon nombre de nouveaux, malgré une époque de restrictions budgétaires qui affectent toutes les activités du ministère.

Le programme d'emploi que nous avons lancé en 1982, conjointement avec le ministre fédéral de l'Emploi et de l'Immigration, a été un des véritables succès de l'an dernier. Le programme spécial de création d'emploi a fourni des débouchés aux travailleurs spécialisés mis à pied dans les domaines de la foresterie, des mines, des loisirs de plein air et autres. En outre, il leur a permis de demeurer dans leurs collectivités.

En 1982-1983, près de 6 000 travailleurs se sont partagés près de 90 000 semaines d'emploi. Je suis très heureux que, par l'entremise du Conseil de leadership et de développement industriel (CLDI), notre gouvernement ait financé la part de l'Ontario, qui s'est chiffrée à 20 millions de dollars.

En 1982-1983, la consultation avec le public a été un facteur-clé de nos activités de planification des ressources. Au cours de l'année, nous avons tenu 18 tribunes publiques sur les forêts privées et 200 réunions sur les directives d'aménagement du territoire des districts. Ces dernières ont permis aux planificateurs du ministère de juger des réactions du public, de repérer les questions-clés et d'en tenir compte lors de l'établissement des directives finales. Au mois de janvier 1983, j'ai rencontré personnellement les représentants de 27 groupes d'intérêts spéciaux pour obtenir leurs commentaires et connaître leurs préoccupations à propos de ces directives.

Les activités d'aménagement du territoire représentent 10 ans d'étude et de planification poussées grâce auxquelles nous avons franchi une étape importante dans l'atteinte de notre objectif de gestion intégrée des ressources en Ontario.

Au cours de la dernière année d'imposition, nous avons signé cinq ententes de gestion forestière, dont la première jamais signée avec une société qui n'est impliquée d'aucune façon dans le domaine des pâtes et papiers.

Une fois de plus, la consultation avec le public a joué un rôle important dans ces ententes. En 1982-1983, nous avons tenu de nombreuses réunions d'information dans le Nord à ce sujet.

Au 31 mars 1983, 13 ententes de gestion forestière étaient en vigueur. Elles couvrent une superficie de près de 80 000 kilomètres carrés, soit 32,8 pour cent de la superficie totale pour laquelle des permis ont été accordés à l'industrie forestière ontarienne. Nous sommes très fiers des progrès que nous avons accomplis dans le cadre du programme des ententes de gestion forestière, qui a été inauguré en 1980.

Un autre événement marquant de l'année budgétaire 1982-1983 a été l'achat par le ministère de deux avions-citernes Canadair CL-215, qui sont les avions les plus perfectionnés pour lutter contre les incendies de forêts. Ces deux appareils permettront au ministère de réagir rapidement et efficacement aux incendies et l'aideront à atteindre ses objectifs dans la lutte contre les incendies de forêts en Ontario.

Au cours de l'année budgétaire 1982-1983, nous avons également stimulé la prospection et la mise en valeur des mines. D'importantes opérations

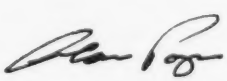
33.5

d'extraction de l'or à Hemlo et à Sioux Lookout, et des projets de prospection et de mise en valeur dans d'autres communautés, ont reçu l'appui du Programme ontarien d'exploration minière, du Programme des ressources énergétiques en hydrocarbures et du Fonds de développement des technologies de prospection financé par le CLDI, pour n'en nommer que quelques-uns. Hemlo, en particulier, a mis en lumière l'industrie minière et a souligné la valeur des programmes de financement et de recherche du ministère.

Nous avons aussi encouragé les groupes communautaires et les personnes intéressées, à travers l'Ontario, à participer activement au Programme de participation communautaire aux pêches. Ce programme offre aux bénévoles des communautés locales l'occasion de travailler avec nos gestionnaires des ressources pour mener à bien d'importants projets portant sur la faune et les pêches. La réaction enthousiaste et l'appui de ces bénévoles nous ont grandement fait plaisir.

Les nombreux projets que le ministère a commencés ont une portée et une ampleur considérables. Que nous parlions de l'élaboration d'une politique de gestion des plaines inondables, du Livre vert sur les forêts privées, de la création d'une Collection provinciale de carottes de sondage, du programme de cartographie de base de l'Ontario ou de nos découvertes en technologie de télédétection, nous pouvons être fiers du rôle de premier plan que le MRN a continué à jouer pour faire en sorte qu'aujourd'hui comme à l'avenir, les ressources naturelles de l'Ontario soient bien utilisées et appréciées.

En jetant un coup d'oeil rétrospectif sur les résultats que nous avons obtenus, je suis très heureux de ce qu'a accompli le ministère en 1982-1983 et je me réjouis à l'avance des résultats plus importants qu'il obtiendra dans les années à venir.



Alan W. Pope

Message du sous-ministre

Le ministère des Richesses naturelles, en tant que tel, existe depuis 10 ans. Ces années stimulantes nous ont offert de nombreux défis et permis de réunir une équipe supérieurement qualifiée et spécialisée. Et puisqu'en 1982-1983 nous n'avons pas pu échapper à la nécessité de nous soumettre aux restrictions budgétaires, les pressions exercées sur l'équipe du MRN se sont aggravées. Il est devenu de plus en plus difficile de continuer à offrir des programmes de ressources efficaces, et nous avons tous dû faire davantage appel à notre expertise et à notre ingéniosité.

Je suis très heureux de pouvoir dire que l'équipe du MRN a relevé les défis que présente le climat économique actuel, et je suis persuadé que la clé de notre succès a été le personnel.

Ce personnel a fait constamment preuve de savoir-faire dans la création de moyens ingénieux et avantageux pour offrir nos programmes à la population de l'Ontario. Parmi les exemples qui me viennent à l'esprit, je cite les programmes spéciaux de création d'emploi, la conception d'une stratégie détaillée de loisirs sur les terres de la Couronne, notre politique des chemins d'accès aux forêts, notre production d'arbres de plantation sous contrat, nos nombreux projets de participation aux pêches, nos services d'aide à la gestion des forêts privées et l'élaboration de nos programmes de récolte sélective de gros gibier.

Ne mentionner que quelques-uns des nombreux programmes du ministère ne rend pas justice à l'excellent travail du personnel qui les a rendus possibles. Je pense tout spécialement aux efforts accomplis non seulement par les personnes qui oeuvrent directement avec le public, mais aussi par celles qui planifient et administrent ces programmes. Beaucoup se sont occupés, au cours de cette année budgétaire, de perfectionner l'efficacité des communications, de l'action positive, du système informatique de gestion et du fonctionnement des systèmes.

Pour bien servir l'Ontario et faire face énergiquement aux défis quotidiens comme nous l'avons fait par le passé, chacun de nous doit renouveler son engagement à faire du ministère un organisme dévoué et créateur pour le reste de la décennie. Chaque jour, je suis le témoin de cet engagement de la part du personnel du ministère et je suis persuadé qu'il se maintiendra.

W.T. Foster

Gestion des ressources minérales

Comment sont formés les dépôts de minéraux? Où les trouve-t-on? Ces questions et bien d'autres servent de base à l'étude qu'effectue la Commission géologique de l'Ontario à la surface et la sous-surface des ressources minérales de la province.

Les cartes que produit le ministère, dans le cadre de son programme de cartographie, sont d'une valeur inestimable pour les directeurs de ces ressources et les explorateurs. En 1982-1983, 55 équipes ont réalisé des travaux de cartographie pour la Commission.

En décembre 1982, la Commission a publié des sommaires détaillés de toutes les études sur le terrain qu'elle a accomplies. Dans 20 cantons du Sud de l'Ontario, on a procédé à l'inventaire des ressources d'agrégats.

Rappelons qu'en 1982, un important dépôt d'or a été découvert à Hemlo, en Ontario, juste à l'est du carrefour des autoroutes 17 et Manitouwadge. On prévoit que d'ici 1987, l'exploitation d'Hemlo pourrait produire 9,3 tonnes d'or par année, ce qui classerait cette mine parmi les plus importantes au Canada.

Également au cours de l'année, les experts du groupe des ressources minérales du ministère ont publié près de 300 ouvrages traitant de la géologie et des ressources minérales de l'Ontario.

Autres faits sur la gestion des ressources minérales pour 1982-1983

- L'Ontario a produit 33 pour cent de l'ensemble de la production de minéraux métalliques et 40 pour cent de la production de matériaux structuraux du Canada.
- La valeur estimée de la production minérale taxable selon la Loi de l'impôt sur l'exploitation minière a été de 2 500 000 000$ et elle a procuré un revenu de 26 000 000$ à la province.
- La Commission géologique de l'Ontario a dirigé 40 projets ordinaires de levés sur le terrain et 21 équipes travaillant sur le terrain pour le compte d'autres organismes.
- Au total, la Commission géologique de l'Ontario a produit 76 rapports et 191 cartes géoscientifiques.

Programme minier

- La valeur totale de la production minière de l'Ontario a été de 3 100 000 000$.
- Dans le cadre du Programme ontarien d'exploration minière (POEM), les participants ont consacré 24 000 000$ à 149 projets qui ont été menés à bien.
- On estime que les dépenses de l'industrie de la prospection minière ont atteint 100 000 000$.
- Les travaux de prospection et de développement à Hemlo et au lac Detour portent à croire que ces deux sites doubleraient la production ontarienne d'or d'ici 1988.

Gestion des ressources forestières

Au mois de mars 1983, le ministère des Richesses naturelles avait signé 10 000 ententes avec des propriétaires privés en vertu de la Loi sur le reboisement qui a été adoptée en 1966.

Au cours de l'année, le ministère a publié les résultats d'une enquête menée auprès de 12 400 propriétaires de lots boisés privés pour connaître les utilisations qu'ils font de leurs lots.

Afin d'assurer un approvisionnement continu en graines d'épinettes noires, on a semé 11 lots de cette espèce dans la région du Nord-Ouest de l'Ontario.

En 1982, la région nord du ministère a connu une récolte exceptionnelle de cônes d'épinettes blanches, pour la première fois depuis 13 ans.

Le ministère possède maintenant un système informatique d'inventaire qui lui fournit un rapport précis des cinq milliards de graines qu'il entrepose. Ces graines proviennent de plus de 60 espèces d'arbres.

L'industrie forestière procure de l'emploi à 80 000 personnes en Ontario. Cependant, plusieurs travailleurs ont été mis à pied au cours de l'année. Pour empêcher ces travailleurs de quitter leurs collectivités et leur procurer de l'emploi, le ministère a mis sur pied, en 1982-1983, son Programme accéléré d'aménagement forestier, en collaboration avec Emploi et Immigration Canada et le Conseil de leadership et de développement industriel (CLDI). Par l'entremise de ce programme, 89 projets ont été réalisés par 1 361 travailleurs forestiers qui se sont partagés 19 000 semaines d'emploi au total.

Un groupe d'experts de divers organismes a préparé un système de classement—sorte de grammaire—qui sera très utile à tous ceux qui s'intéressent à la sylviculture. Une première ébauche du volume regroupant les termes techniques propres à ce secteur a été complétée cette année.

Autres faits sur les ressources forestières

- La récolte de bois de la Couronne en Ontario s'est chiffrée à 14 786 521 mètres cubes et les droits de coupe ont produit un revenu de plus de 35 000 000$.
- Les pépinières du MRN ont produit 74,7 millions de jeunes plants déracinés ou en pots et le ministère a passé des contrats avec des pépiniéristes privés pour la livraison de 5,5 millions de jeunes plants en pots.
- En vertu de la Loi sur les forêts, le MRN a géré 110 846 hectares de forêts régies par une entente de gestion.
- Le ministère a supervisé la pulvérisation aérienne d'herbicides et d'insecticides sur 28 685 hectares de forêts en 1982-1983.
- En collaboration avec le Conseil de leadership et de développement industriel, 13 ententes de gestion forestière avaient été conclues, au 31 mars 1983. Ces ententes couvraient 79 597 kilomètres carrés de forêts, soit 32,8 pour cent de la surface totale pour laquelle des permis ont été accordés à l'industrie forestière.

Loisirs de plein air

Les rives du lac Ontario, dans la région métropolitaine de Toronto, sont devenues les endroits préférés des Bernaches du Canada. Depuis des années, le ministère des Richesses naturelles cherche à les reloger et à réduire à environ 50 le nombre de couples reproducteurs de cette espèce. Cette année, on a expédié des bernaches et des oeufs de bernaches dans diverses régions de l'Ontario, du Canada et des États-Unis.

Le ministère a aussi émis une série de directives concernant les zones où la construction de chalets risque de détruire l'habitat du huard.

En plus de la révision d'une brochure sur les différentes sortes de zones de gestion de la faune des régions du Sud de l'Ontario, les experts du ministère ont mis à jour une autre brochure qui décrit l'évolution, la biologie et l'habitat du Cerf de Virginie.

Le programme de récolte contrôlée du chevreuil, mis sur pied par le ministère en 1980, a connu des résultats positifs en 1982-1983 puisque de nombreux chasseurs et non chasseurs ont rapporté avoir vu beaucoup plus de chevreuils dans le Centre et le Nord de l'Ontario.

Une des principales activités du ministère en 1982-1983 a été l'élaboration des plans d'aménagement du territoire des districts. La population a été invitée à exprimer ses commentaires au sujet d'un certain nombre de parcs proposés et le personnel du ministère a fait l'analyse des propositions soumises. Les directives d'aménagement du territoire des districts seront complétées au début de 1983-1984.

Prédire si la population des ours noirs, des chevreuils ou des originaux diminuera ou augmentera dans 20 ans n'est plus chose impossible grâce à l'ordinateur. Les chercheurs du ministère utilisent maintenant les renseignements fournis par ce précieux instrument pour modifier les plans de gestion de la faune afin qu'ils soient plus efficaces.

Au cours de l'année budgétaire, le personnel des parcs du ministère a entrepris 113 projets d'amélioration, d'exploitation ou de mise en valeur. De ce nombre, 95 ont été complétés.

Autres faits concernant les loisirs de plein air pour 1982-1983

- Les stations piscicoles du MRN ont produit 6 312 000 poissons.
- 3 140 000 poissons ont été relâchés dans les Grands Lacs.
- Les pêches commerciales de l'Ontario ont récolté quelque 34 110 293 kilogrammes de poisson représentant une valeur de 36 788 345$.
- Depuis 1979, on a analysé 4 130 échantillons d'eau prélevés à 2 875 emplacements afin d'établir la susceptibilité des lacs ontariens aux dépôts acides.
- Dans le cadre du Programme de participation des collectivités aux pêches, quelque 3 300 journées de travail bénévole ont été consacrées à 22 projets approuvés.

Gestion des terres et des eaux

D'importants projets d'aménagement des terres et des eaux ont été complétés ou entamés au cours de l'année 1982-1983 et la consultation publique a joué un rôle majeur dans les prises de décision à propos de ces projets.

De nouvelles techniques de cartographie sont apparues et les cartes topographiques de la province ont été mises à jour.

Le Centre ontarien de télédétection du ministère a reçu un octroi de 3 000 000$ du Conseil de leadership et de développement industriel (CLDI) pour la modernisation de son matériel de programmation et l'élargissement de son programme de formation.

Suite à la révision de la politique de location des terres de la Couronne, des clubs sportifs se sont vus confier une partie de la gestion des pistes d'hiver qu'ils entretiennent.

Le Canada, l'Ontario et le Québec ont signé, pour la première fois, une entente pour assurer la protection contre les inondations des terres situées le long de la rivière Ottawa.

Autres faits sur la gestion des terres et des eaux pour 1982-1983

- Le ministère a présenté 20 directives d'aménagement du territoire dans le Sud de l'Ontario et 25 dans le Nord.
- Dans le cadre du Programme de cartographie de base de l'Ontario, cinq pour cent de l'Ontario a été cartographié. On a achevé la cartographie à grande échelle de neuf municipalités et on a commencé les travaux dans 25 autres centres.
- On a achevé les nouveaux levés des limites cantonales du Sud de l'Ontario. Actuellement, 9 100 kilomètres de limites cantonales en Ontario ont fait l'objet de nouveaux levés.
- Dans le cadre du Programme Canada-Ontario de réduction des dégâts dus aux inondations, on a consacré 1 500 000$ à 38 projets de cartographie de terres inondables.
- Le ministère a construit 410 kilomètres de routes et quatre ponts pour un total de 16 500 000$, dans le cadre du programme d'accès aux ressources.

Centre de surveillance et de lutte contre les incendies

Grâce aux conditions climatiques favorables et à l'excellent travail des équipes du Centre de surveillance et de lutte contre les incendies, peu d'hectares de forêt ont été détruits par le feu en 1982-1983.

Une hausse budgétaire de 6 000 000$ a permis au Centre de perfectionner ses activités de lutte et de protection contre les incendies et d'accroître son personnel de 30 à 175 membres.

La nouvelle politique de gestion des incendies du ministère a été approuvée en 1982. Elle a comme objectifs de prévenir les pertes humaines, les blessures personnelles et la perturbation qu'entraînent les incendies de forêt; de garantir que les incendies affectent très peu les travaux publics, les propriétaires privés et les ressources naturelles et d'utiliser les avantages que procurent les incendies dans la gestion des terres et des ressources.

C'est l'aire de l'ordinateur! De plus en plus, le ministère met des systèmes d'ordinateurs à la disposition des directeurs de lutte contre les incendies pour faciliter les prises de décisions importantes concernant les stratégies d'élimination des incendies. Ces systèmes sont concentrés dans les cinq centres de lutte contre les incendies du ministère et on projette l'installation d'un système central dans toutes les régions de la province qui sont propices aux feux de forêt.

Un effort particulier a été fait, au cours de l'année, pour sensibiliser la population en matière de sécurité en forêt, afin de prévenir les feux de forêt causés par la négligence humaine.

La gestion efficace des incendies exige une bonne communication. À cette fin, le ministère a conçu une trousse spéciale de communications (TACK) qui simplifiera les communications radio entre les centres de lutte contre les incendies.

Autres faits concernant le Centre de surveillance et de lutte contre les incendies pour 1982-1983

- Il y a eu 1 396 incendies de forêt en Ontario mais on n'a perdu que 3 981 hectares de forêt.
- Le directeur du Centre s'est rendu en Chine populaire pour entreprendre une étude commanditée par l'Agence canadienne de développement international (ACDI) à propos d'une aide éventuelle à ce pays pour la lutte contre les incendies.
- Le ministère a envoyé deux équipes provinciales de pompiers pour aider à lutter contre les incendies de forêt en Alberta. Il a prêté des avions-citernes au Manitoba, à la Saskatchewan et à L'Alberta et de l'équipement à la Colombie-Britannique.
- Le ministère a acheté deux avions-citernes lourds Canadair CL-215 avant le début de la saison des incendies de forêt.

Administration

En 1982-1983, le système d'appel téléconférence a joué un rôle important dans la réduction des frais de déplacement occasionnés par la décentralisation des services du ministère. Grâce à ce système, on a multiplié le nombre de réunions tout en limitant leur durée.

Dans le cadre de son programme à long terme de traitement de l'information, le ministère a fait l'acquisition, en 1982, d'un mini-ordinateur qui est le premier à faire partie d'un réseau qui sera implanté dans toute la province.

Les services de l'Administration et du Contentieux ont organisé des ateliers et des colloques pour les employés du ministère qui sont préposés à l'embauche d'entrepreneurs privés pour la réalisation de projets spéciaux.

Les changements apportés au programme d'action positive ont permis au ministère d'offrir à son personnel féminin des chances d'emploi égales en restructurant et diversifiant les postes occupés par des femmes. En 1982, les objectifs d'embauche et de promotion que s'était fixés le ministère ont été atteints à 100 pour cent.

Les communications ont pris une importance particulière au cours de cette année budgétaire. Des plans de communications ont été développés pour la majorité des projets de l'ensemble du ministère.

Les services en français ont été renforcés et améliorés par l'embauche d'un coordonnateur à plein temps et d'un rédacteur-réviseur francophone.

A l'automne 1982, le ministère a lancé son magazine "Landmarks", la première publication depuis 10 ans dévouée aux programmes du ministère.

Dans ses activités, le ministère des Richesses naturelles est associé à un certain nombre d'agences, de conseils et de commissions. Ces liens sont basés sur la gestion des ressources naturelles et varient d'un organisme à l'autre.

Ensemble du personnel du MRN

31 mars 1983	Permanent	Non classifié	**Total**
Bureau principal	917	318	**1 235**
Bureaux régionaux et de district	3 387	1 062	**4 449**
Total	4 304	1 380	**5 684**

Selective Harvests, Mild Winters Good for Deer

Ontario's deer population is a valuable natural resource and MNR must manage it carefully to ensure a balanced number of animals. Too many deer in an area will overstress habitats and food supplies. Too few deer means that the herds need to be given time to increase.

MNR took steps to balance Ontario's deer herds by introducing a selective harvest program in 1980. The program controls the number of antlerless deer and fawns which can be hunted in areas where the population is overstressed by hunting and habitat deterioration. Reports from observers indicate that efforts are already having an effect. In 1982-83, hunters and non-hunters alike reported seeing more deer in central and Northern Ontario, where the deer herds had previously been severely reduced. Encounters with deer were up about 30 per cent in MNR's Algonquin Region alone during 1982-83.

But MNR doesn't take all the credit for the increase in the deer population in these areas, as nature co-operated in 1982-83, as well. One of the mildest winters on record helped to keep deer mortality low in 1982-83.

On Bears and Models and the Future

What will Ontario's bear population be like in the year 2000? Thanks to the 20th-century equivalent of the crystal ball—the computer model—the answers to questions about the future of Ontario bears are beginning to become available.

Until recently, not much was known about bears—aside from their voracious appetites, their long winter hibernations and the fact that sportsmen hunted them. But in 1969, MNR began a long-term study to learn more about the population dynamics and life history of black bears.

MNR scientists discovered that bears are much more sensitive to hunting than other species because the bears mature so slowly. At their maximum level of productivity, female black bears produce only 1.1 bear cubs per year—a level of reproduction which low when compared with other popular game species such as deer and moose.

Predictive ability in wildlife management—as in any science—is very important. In order to say whether a species is being over- or under-harvested, a great deal of information must be accumulated. This is then studied to find trends and patterns. The black bear study enabled MNR's researchers to build up a significant data base—information valuable to the better management of the species in Ontario.

MNR's black bear computer model tells ministry specialists what percentage of the bears can be harvested—and when—without overstressing the population. Also, if it is known exactly how many bears are harvested each year, the computer becomes a useful planning tool to assist in making management changes when they are needed.

Better information on how many bears are harvested each year is now being acquired from the hunters themselves. They provide MNR with the premolar teeth of harvested bears. The age information obtained from the examination of the teeth will then be fed to MNR's computers. This research is helping to ensure that the future of the bear population of Ontario will continue to be bright.

Today's COs: Conservation Management Specialists

Today's Conservation Officer (CO) is not just a law enforcement officer or a game warden, although it's true that a CO does both of these jobs. A CO is really a specialist in outdoor conservation management—MNR's chief liaison agent between the ministry, the public and other agencies in the field. Conservation Officers help other agencies search for lost children and hikers, investigate serious crimes, help stranded hunters, and much more besides. The COs provide public information on Ontario's outdoor recreation resources. The officers also enforce the laws governing the use of those resources.

Much of a CO's time is spent on the enforcement of Ontario's fish and wildlife legislation, as well as other federal and provincial statutes. In 1982-83, conservation officers contacted over 336,000 people in enforcement activities. In all, nearly 11,000 charges were laid, which resulted in over 9,600 convictions. COs issued formal warnings to another 11,000 to 12,000 people. The total amount of fines assessed in 1982-83 in connection with the charges made by COs was $772,052, with 265 cases still pending on March 31, 1983. So enforcement plays a big role in a CO's job, but it's not the whole story.

MNR Librarians Use Computers to Aid Research

One of the advantages of the new computer technology is that it can be used to take some of the drudgery out of library research. MNR librarians at Main Office and at Maple are now doing computer-assisted information searches more and more.

The libraries have access—by computer terminal—to 200 worldwide data bases, containing information on just about every academic discipline imaginable. What used to be referred to as "looking something up" is increasingly being referred to as "accessing the data base".

In 1982-83, MNR librarians performed dozens of computer-assisted data searches for foresters, biologists and other resource managers on such topics as the re-ingestive habits of the snowshoe hare; the use of carbon dioxide in greenhouses to stimulate plant growth; the legislation that exists throughout the world on nature preserves; the toxic effects of acidity on fish species; and the lifestyle and habitats of the arctic fox, to name just a few.

By tapping into a computerized data base, MNR librarians can uncover articles on almost any topic in almost any scholarly publication in the world. A computer search is much faster than traditional methods, and librarians can check the contents of thousands of periodicals and journals in a matter of minutes. The system can even print out abstracts.

Computerized data bases are causing a revolution in library research, and this new technology is making the research tasks of MNR's managers easier, faster and more efficient.

Fisheries

1982-83 Fisheries Program Highlights

- In 1982-83, MNR fish hatcheries produced 6,312,000 fish.
- A total of 3,140,000 fish were stocked into the Great Lakes during the year.
- Since 1979, 4,130 water samples from 2,875 sites have been analysed to determine the susceptibility of Ontario's lakes to acid deposition.
- In the 1982 calendar year, Ontario's commercial fishermen harvested nearly $37-million worth of fish, or some 34,110,293 kg.
- Under the Community Fisheries Involvement Program, some 3,300 work-days of volunteer labor were provided for the 22 approved projects.

Left: Ontario's commercial fishing industry harvested $36-million worth of fish in 1982.

Growing Public involvement in Fisheries

During 1982-83, hundreds of Ontario anglers and outdoor enthusiasts donated time and labor to maintain and improve the province's fisheries. Under MNR's Community Fisheries Involvement Program (CFIP), a total of 22 projects—for habitat improvement, stream rehabilitation, MNR facilities improvement, and more—were approved during the 1982-83 fiscal year.

The program is a unique opportunity for public and government to work together. MNR offers expertise and assistance for the CFIP projects and the public volunteers time and labor, or donates equipment to the ministry for projects such as the renovation of fish culture stations or the transportation of fish for stocking.

In 1982-83, an estimated 3,300 work-days of volunteer labor were provided for the 22 approved projects.

Interest in CFIP continues to grow among private angling groups. Many community fisheries improvement projects have been submitted for MNR approval. And, to publicize the program more effectively, the ministry produced a new exhibit, a pamphlet, and an audio-visual show during 1982-83. By the end of the fiscal year, a new, detailed stream improvement manual, authored by MNR's fisheries specialists, was nearing completion.

CFIP Rebuilding Ringwood Fish Culture Station

Thanks to the CFIP initiatives, MNR's Ringwood Fish Culture Station received extensive alterations during 1982-83. The work was made possible by approximately $100,000 worth of equipment and materials donated by the Toronto Star's Great Salmon Hunt and the St. Catharines Game and Fish Association.

The remodelling and modifications to Ringwood Station included adding wells and aeration and cooling equipment to improve water quality and quantity. The expansion increased the incubation and early rearing capacity of the station. Other facilities are under construction.

The station will now be able to produce more and healthier coho and chinook salmon. When the work is completed, the station will be able to provide all of MNR's stocking targets for both coho and chinook salmon—some 250,000 coho yearlings and 450,000 chinook fingerlings a year.

Modernizing Ontario's Commercial Fishery

Managing Ontario's $36-million commercial fishery is an enormous responsibility. It can also be a very tricky business. Incomplete information about Ontario's annual fish catch can lead to decisions which can cause too many fish to be harvested or allow valuable business opportunities to be wasted. At present, MNR recognizes a need to improve its ability to assess the commercial fish catch. Also, the ministry is not satisfied with the present system of commercial licensing in the industry. For its part, the industry has acknowledged a number of problems that have to be dealt with.

The ministry and the industry agreed to work together on a plan to modernize the commercial fishing industry in Ontario. A joint MNR-industry committee—the Committee on Modernizing Ontario's Commercial Fishery—was given the task of developing appropriate methods for commercial licensing and harvest control. In April, 1982, the committee delivered its recommendations to the ministry in a report.

The report recommended modernization and improvement of MNR's ability to predict the fisheries resources; improved harvest regulations; and updating and streamlining of the commercial fisheries licensing procedure. The main thrust of the report was a recommendation to change the basis of commercial fishery assessment to a quota-per-licence system.

In January of 1983, the Minister announced that the majority of the committee's recommendations would be implemented. With continuing dialogue and much hard work, the important task of modernizing the commercial fishing industry in Ontario has begun.

What to do when it Rains Cats and Dogs . . . and Acid

The full effects of acid rain are not yet known. The Ministry of Natural Resources is vitally interested in acidic precipitation's effects on Ontario's fisheries. Similarly, the Ministry of the Environment is constantly seeking information about how acid rain affects water chemistry and the lower forms of life. The two ministries have become involved in a co-operative study of the effects of acid rain.

The results of the study will help scientists to determine whether acidic lakes can be rehabilitated, whether lake trout stocked in rehabilitated lakes will reproduce naturally, and whether acidification can be mitigated in extremely sensitive lakes. Small inland lakes are being studied, as their sport fishing potential is in the most serious jeopardy.

Boland Lake, near Sudbury, has been studied intensively for one year. A test to neutralize the lake's acidic content is scheduled for 1983. Once the acidity of the lake has been reduced, MNR will stock it with lake trout to determine whether the species will reproduce in the rehabilitated lake. Miskokway and Trout Lakes, both classified as extremely sensitive, underwent the first year of a projected two-year intensive study in 1982-83, to test the feasibility of using lake neutralization to protect these lakes' sport fisheries.

Other highlights of the 1982-83 fiscal year included the development of computer models of a small lake's response to acidification; a collaborative study with the federal Department of Fisheries and Oceans of four Precambrian Shield lake chains; trend-through-time acidic precipitation studies of twelve extremely sensitive lakes; and toxicity studies on the effects of pH-level reductions on young smallmouth bass.

Fisheries Special Employment Program Helps the Birds, too

During 1982-83, the fisheries special employment program approved 94 projects, and provided 677 laid-off workers with 10,101 work-weeks of employment. The program was part of a special MNR-Canada Employment and Immigration Commission (CEIC) employment plan, and more than $4.5-million was spent on fisheries projects in 1982-83. Because of the program, many fish and wildlife management jobs which needed to be done, but which would never have been undertaken without the program, have been accomplished.

The projects included the improvement of fish habitats; the removal of watercourse debris; the assessment of MNR stocking activities; creel censuses; population studies of lake herring and rainbow smelt; commercial fish monitoring; collection of data on the Ontario baitfish industry, and much more.

Fish weren't the whole story—the program helped wildlife management, as well. Under the fisheries program, many wildlife management projects were undertaken. Deer management, habitat improvements for waterfowl, studies of how logging affects moose populations—these and other wildlife projects were also part of the program's benefits.

As was the case with the special employment program in the forestry, provincial parks, minerals, and conservation authorities sectors, the fisheries program took advantage of Section 38 of The Unemployment Insurance Act. Ontario's share of the cost was provided by the Board of Industrial Leadership and Development (BILD). MNR administered all the projects, and provided advice and equipment.

It's Good Times for Ontario Brown Trout

The brown trout—one of Ontario's best fighting fish—is making a comeback thanks to MNR's fisheries management

Left: An estimated 3,300 work days of volunteer labor were provided during 1982-83 for the 22 approved projects under MNR's Community Fisheries Involvement Program.

Right: Scientists at MNR's Southern Research Station in Maple search for new ways to develop the potential of Ontario's resources.

activities. The brown trout, originally a fish native to Europe, was first introduced to Ontario in the 1800s. But since the early 1960s, when the brown trout was implicated as a disease carrier, it hadn't been stocked in Ontario. The brown trout has now received a clean bill of health, and that's good news for Ontario anglers.

Brown trout now exist in the Credit River, the Sydenham River near Owen Sound, and in the Ganaraska River near Port Hope. To augment the fish's population in Ontario, MNR stocked 71,000 brown trout fingerlings in the fall of 1982 in Lake Ontario, in Summit Lake, and in the Ganaraska and Sydenham River systems. In the spring of 1983, the same areas were stocked with 139,000 brown trout yearlings. The stocking programs were in response to requests from anglers and sports clubs throughout southern Ontario.

Through the Community Fisheries Involvement Program (CFIP), fishing clubs are undertaking projects to create spawning beds and nursery habitats for the young fish. MNR's aim is to establish naturally-reproducing communities of brown trout. The expected population increase is very good news for anglers.

A Tale of Two Fishes—Splake and Lake Trout Backcross

In the early 1950s, the lake trout population of the Great Lakes went into a severe decline. One reason for this was that sea lampreys were killing off the fish before they could spawn. A sea lamprey control program was introduced, and it has been quite successful.

The plight of the lake trout rekindled interest in splake—a hybrid fish produced by crossing a brook (speckled) trout with a lake trout. MNR scientists wanted to produce an early maturing, fast growing trout which could live in the depths of the lake which the lake trout formerly inhabited.

Hybrid splake have been developed which have a broader range of genetic material than the parent species, and selective breeding can develop strains of fish with special characteristics. For example, certain strains of splake have been developed for stocking in inland lakes—lakes which are not necessarily best suited to either brook trout or lake trout.

MNR researchers have also experimented with breeding splake back to the parent species—and have had considerable success with a hybrid of a hybrid, known as the lake trout backcross. The backcross matures almost as early as splake and has the longevity of the lake trout.

Over the years, MNR has stocked both splake and lake trout backcross in the Great Lakes. Anglers are enthusiastic about the seasonal sport and eating qualities of both fish.

In 1982-83, MNR stocked Georgian Bay with 927,000 lake trout backcross—part of a total of 3,140,000 fish stocked in the Great Lakes last year.

Lands and Waters Management

1982-83 Lands and Waters Program Highlights

- MNR presented 20 District Land Use Guidelines in southern Ontario and 25 in the north.
- Five per cent of Ontario was mapped under the Ontario Basic Mapping Program. Large-scale mapping of nine municipalities was completed, and work began in 25 other centres.
- The Canada-Ontario Flood Damage Reduction Program spent $1.5-million on 38 flood-risk mapping projects.
- Southern Ontario's township boundary resurvey was completed. A total of 9,100 kilometres of township boundaries in Ontario have now been resurveyed.
- MNR's Resource Access program built 410 kilometres of roads and constructed four bridges, at a total cost of $16.5-million.

Left: Some 87 per cent of Ontario is Crown land, and MNR manages it for the benefit of all the people of Ontario.

Public Response helped MNR planners

Land use planning is a process to help make decisions about how the lands and waters of Ontario will be used. There are many land uses: recreation, mining, forestry, housing, industrial facilities and agriculture, to name just a few. All potential resource users—industries, outdoor groups, tourist operators, trappers, native groups and private individuals—have a stake in long-term land use planning. One of MNR's toughest problems is to identify the future uses of Ontario lands for the benefit of *all* potential users.

In 1974, MNR began work on its Strategic Land Use Guidelines program. The program was a first for Canada and one of the most comprehensive land use planning exercises of its kind in the world. During 1982-83, the ministry put the finishing touches on the District Land Use Guidelines for Ontario.

From April to August, 1982, the ministry held 140 open houses across Ontario, and presented the proposed district land use guidelines to the public. There were 25 guidelines for Northern Ontario and 20 for southern Ontario. At the open houses, more than 10,000 people came to ask questions and get answers from MNR staff. MNR also received 10,000 comments, cards, briefs, letters and other written submissions on land use planning from the public and from special interest groups. This information was invaluable to the ministry in completing its final land use guidelines.

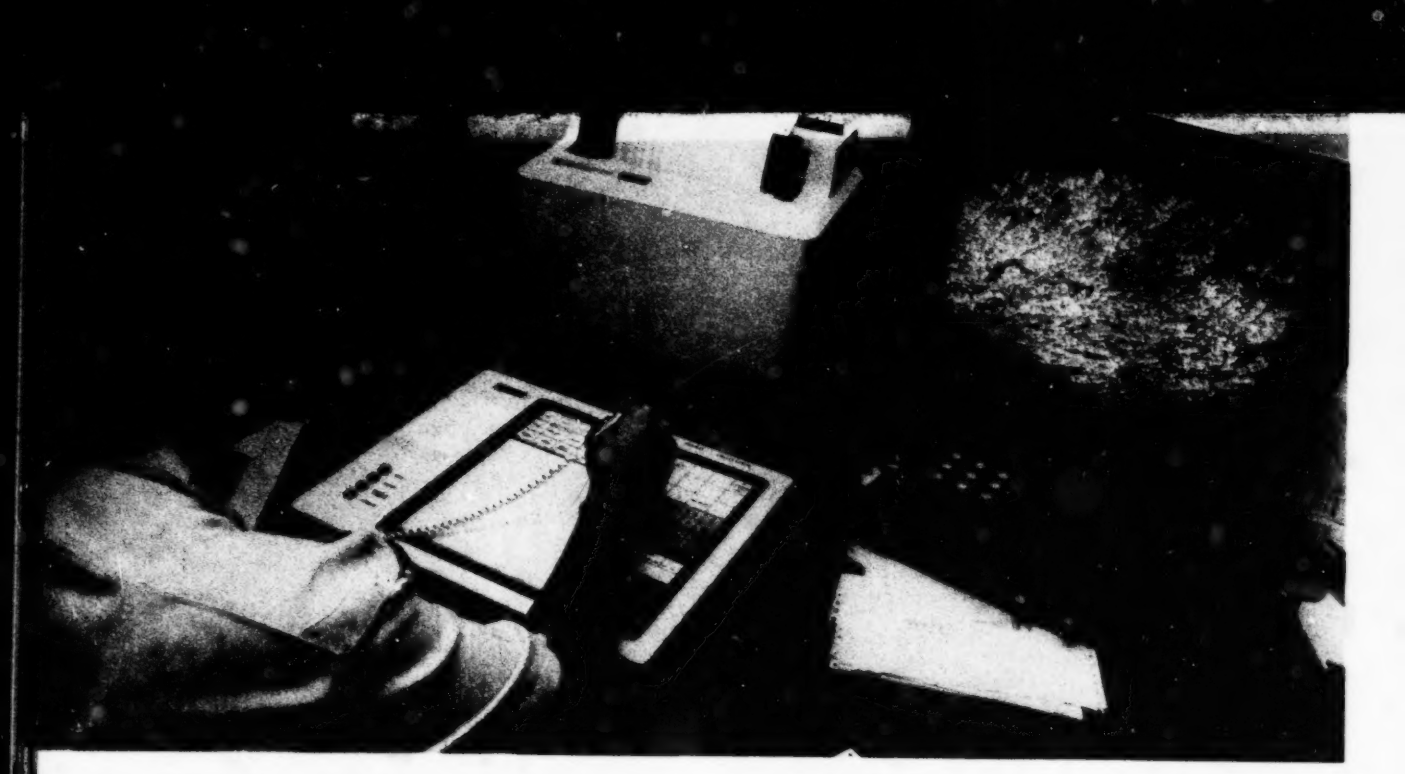
Ontario Basic Mapping Program in Fifth Year

A traditional criticism of map-making—or cartography—has been that some maps are less accurate than others. In fact, no map can be completely accurate, since it is a flat representation on paper of the curved surface of the earth. There are maps of Ontario now in use which vary as much as two-fifths of a kilometre in distance and up to 30 metres in altitude.

The Ontario Basic Mapping program was begun in 1978 to produce a provincial set of basic maps *without* such discrepancies. Based on the Universal Transverse Mercator (UTM) grid system, the basic maps are as accurate as modern maps can be, because every point on the map has its own unique mathematical co-ordinates.

The maps—produced at different scales and levels of detail—contain topographical information which is valuable to government and industry: elevations, contours, watercourses, water bodies, roads, railways and buildings. The information on the maps can be used for land planning, emergency planning, for environmental projects and transportation routes.

During 1982-83, the Ontario Basic Mapping program finished mapping an area comprising five per cent of the province. By March, 1983, 15 per cent of Ontario and 80 municipalities had been completed. The area which is now mapped covers eastern Ontario, the Niagara Peninsula, and a strip of land across the southern portion of Northern Ontario. All the mapping was done by private companies under contract to the ministry.



Geographic Referencing Seminar Held in December

Since 1974, MNR has been working on a system to incorporate all the available land information in Ontario into a standardized mathematical grid. The system will assign fixed co-ordinates to such things as telephone cables, pipelines, sewers, property and buildings, to permit land use planners and other specialists to have a standard, integrated reference system. Identifying a piece of information according to where it is located is what's known as geographic referencing—a rapidly-developing field in which MNR is playing a leading role.

In December, 1982, the Ministry of Natural Resources and the Interministerial Committee on Geographic Referencing co-sponsored a two-day conference, called "The seminar on Land-Related Information Systems—Municipal/Provincial Integration".

About 200 participants registered for the conference, many of them from municipalities: mayors, municipal engineers and planners, surveyors and other interested officials. The conference participants learned about the latest computerized land-related information systems available, and about what the provincial government has been doing over the last few years in the field of geographic referencing technology.

Township Boundary Resurvey Completed in Southern Ontario

The first township boundaries in Ontario were surveyed in the Kingston area, in the late 1700s. Much of the area was still wilderness, and the early surveyors had to battle with what today seem almost insurmountable difficulties as they drove their wooden surveying posts into the ground. In fact, surveyors didn't start to use the familiar iron bars of today until about 1903. Many of the original wooden surveying posts marking Ontario's township boundaries have deteriorated as a result of time and elements. And accurate township boundaries are important to land planners and to all those involved in the development and management of the province's resources.

Several years ago, MNR began a program to resurvey all the township boundaries in Ontario. In December, 1982, the resurvey program was completed for all of southern Ontario. It includes all the area south of the French and Mattawa Rivers, a total of about 4,500 kilometres of township boundaries – more than the distance between Toronto and Vancouver.

In Northern Ontario, where the rugged Canadian Shield limits agriculture, roads and fencing, surveying work is more difficult, but MNR completed another 300 kilometres of township boundary resurveying in 1982. The provincial total of resurveyed boundaries is now just over 9,100 kilometres. All the surveying work has been completed by private surveyors under contract to MNR.

BILD Grant Expands OCRS Facilities

In April, 1982, Ontario's Board of Industrial Leadership and Development (BILD) announced a grant of $3-million to MNR's Ontario Centre for Remote Sensing. The grant was for the upgrading of computer equipment and the development of an expanded technical training program aimed at researchers and industry.

In 1982-83, OCRS spent $600,000 of the grant on the addition of three work stations to its computer system, bringing the number of work stations to four. The system now has extra storage capacity, and can accommodate four people working on it simultaneously. The system at OCRS—second-largest of its kind in the world—is available to governments, industry, educational and research institutions.

OCRS also worked in 1982-83 on a training program to instruct non-OCRS staff on the operation and applications of the equipment. Most of OCRS's clients need the facilities only periodically—for forest inventories, agricultural surveys, and land use mapping, for example. Details on the training system at OCRS can be obtained by contacting the Centre's Chief Scientist.

Airborne TV Studio Takes Inventories, Makes Maps

Everybody knows about aerial photographs—well, almost everybody. And almost every TV news show uses film or videotape which is shot from the air. But videotaping for resources management? That's what MNR is doing, with the help of the Ontario Centre for Remote Sensing.

Left: At the Ontario Centre for Remote Sensing, scientists are developing new uses for remote sensing technology.

Right: MNR's Streamflow Forecast Centre helps the ministry predict floods.

OCRS has been studying the many advantages of making videotapes from helicopters for agricultural land use surveys, forest regeneration studies and wild rice field management. In 1982-83, the first-ever aerial videotapes were made to assess the habitats of trout streams. And OCRS discovered that, for some applications, videotape is better than aerial photography.

Videotape doesn't provide as much detail as aerial photos. But tape can be watched—on a monitor—as it is being made. So the picture quality on tape is never in doubt. Tape can also be played back as soon as it is made. And when the subject matter is old and no longer needed, the tapes can be reused to record new information. Tape's zoom and freeze-frame features make it a more versatile medium than traditional photographic film.

OCRS has used videotape to make maps and inventories of the types of land uses in Ontario. So if you think you see an airborne TV studio, don't panic; it's not a close encounter of the third kind—it's probably another one of OCRS's innovative experiments.

Satellite Maps Help Find Energy Resources

How many peat deposits are there in Ontario? Two different parts of the ministry—the OCRS and the Ontario Geological Survey (OGS)—worked together on that question during 1982-83.

OCRS has developed a technique for mapping wetland areas—where peat deposits are often found—by using data obtained from a LANDSAT satellite, hundreds of miles above the earth. The OGS staffers co-operated on a sampling project in 1982-83—checking the peat deposits at selected wetland sites throughout Ontario. OCRS is looking for a way to measure depth and decomposition rates of peat, and to discover how to estimate the volume and quality of the deposits. If natural resources specialists could conduct peat inventories from satellite data, the process would be much cheaper and faster than at present.

OCRS maps use a color-coded legend to indicate what is on the ground: forests, pasturelands, wetlands, wild rice fields—even forest fires. The maps are produced in a standard format, which includes place names, water bodies, and latitude and longitude references. The computer-produced maps can be made more cheaply than by using traditional methods, and can be updated rapidly.

Scientists around the world have expressed great interest in the OCRS technology, which can also be used for other studies—differentiating agricultural crops, for example, or indicating the success of coniferous forest regeneration on cutover or burned areas.

Crown Land Use Permits for Winter Sports Clubs

Across Ontario, many winter sports clubs maintain snowmobiling and cross-country skiing trails on Crown land. In September, 1982, MNR announced a new policy to allow the clubs to manage the use of the winter trails, and to charge a fee for the use of the trails, if they wish.

The clubs became responsible for the full cost of maintaining the trails in 1981-82. The new land use permit policy was introduced to give the clubs some management control over the trails they maintain. It was also expected to increase clubs' revenues and boost their memberships.

On trails that cross private land, clubs can manage the use of trails, and can also charge a fee if they wish—but only with the landowner's permission.

The ministry made limited funding available in 1982-83, to help clubs meet the initial costs involved with putting the new policy into effect. And MNR also continued to maintain and operate trails in provincial parks across the province, as well as on some Crown lands.

New Crown Land Rental Policy Introduced

In March, 1983, MNR introduced a new rental policy for Crown land in Ontario. The ministry developed a policy to overcome inequities and discrepancies in the 25-year-old rental rates set out in The Public Lands Act.

Previously, rent on all Crown land was assessed at 10 per cent of the market value of the property. The new policy introduced a sliding-scale rental formula based on three criteria: the value of the land, the intensity of the proposed land use, and the security of tenure granted for the land use. Rent on cottages, recreational camps and community docks is now three to 12 per cent of market value. A long-term lease with an option to purchase, however, is assessed at the premium rate, because the security of tenure is greater.

The new rental policy affects all new leases, licences of occupation and land use permits, and applies to existing licences and leases when they come up for review. For 1983, however, any rent increases on existing leases and licences are limited to five per cent—the maximum increase prescribed by the Administered Prices Restraint Program.

Five Agencies Agree on Plan to Manage Ottawa River Basin

The first-ever Canada/Ontario/Quebec agreement on co-operative water basin management was signed by five government agencies in March, 1983. The agencies included Environment Canada, the Ontario Ministries of Natural Resources and Intergovernmental Affairs, and the Quebec Environment and Intergovernmental Affairs Ministries. The agreement was to provide flood protection along the Ottawa River while maintaining other water uses, including hydroelectricity.

The Ottawa River Basin has been the focal point of government concerns for years. Annual flood damage in the basin area is over $1.5-million. The river also provides municipal water supplies, recreation for about one million residents of Ontario and Quebec, and about $1-million worth of hydroelectric power daily. The basin was the subject of a six-year study to accommodate both flood control plans and other concerns, and the study ultimately resulted in the new agreement.

The agreement created a new water management board charged with developing long-term strategies for the management of the Ottawa River Basin.

New Ice Jam Management Publication

To help deal with ice-caused floods, MNR produced a new publication, *Ice Jam Management*, in November, 1982.

This publication came about because of an increasing number of requests from municipalities and conservation authorities for guidance and procedures in dealing with ice jams and the floods which they can cause.

The new publication contains sections on the history and trends of ice jam floods, conditions which cause floods, the kinds of ice formations that cause problems, and techniques for predicting breakups. It also offers advice on monitoring ice conditions, remedial measures and the principles of ice control. The 23-page publication can be obtained by contacting the ministry's Conservation Authorities and Water Management Branch at Queen's Park.

Lakehead Flood Control Project Nears Completion

For many years, inadequate channel capacity on the Neebing and McIntyre rivers has caused serious spring flooding in the downtown core of Thunder Bay. In 1981, a multi-year, $15-million project was begun to remedy the problem. During 1982-83, five new construction contracts were awarded, for a total of over $4-million. During the year, three bridges and some major portions of the channel were completed. On July 6, 1982, the rebuilt 110th street bridge was officially opened.

The Lakehead Region Conservation Authority expects that all the major construction on the project will be finished in 1983—one year ahead of schedule, and well within the allocated budget.

Final Stage of Wallaceburg Flood Control Project Approved

For years, recurrent flooding of the St. Clair River and its associated damages have plagued the residents of Wallaceburg. But not for much longer. In February, 1983, the Minister of Natural Resources gave the final approval to the St. Clair Region Conservation Authority to complete the W. Darcy McKeough Floodway project.

A seven-kilometre floodway channel has already been built between the North Sydenham and St. Clair Rivers. The next step is the construction of an earth dam across the Sydenham about 15 kilometres upstream from Wallaceburg. The last stage of the project will cost an estimated $14.8-million and involves the construction of the dam and flood control gates, roads and bridges, and land assembly.

When the dam gates are closed, flood waters will be diverted from the 5,000 homes and many businesses of Wallaceburg—a big relief for the residents of a town that has been flooded so many times in the past.

Brantford to Receive Flood Protection

Brantford is another flood-prone area of Ontario. Almost a quarter of Brantford is situated on the Grand River flood plain, and there has been severe flood damage in past years. Since 1978, MNR has been working with the Grand River Conservation Authority on a project to minimize the flood danger to the estimated 5,000 people who live or work in the flood plain.

Right: More than 10,000 people attended MNR's 184 open houses on strategic land use planning in 1982-83.

The project—scheduled for completion in 1989—consists of channel improvements, dike building and other associated works. The 1982-83 phase of the project cost $3.5-million, and involved land acquisition and major construction.

Hurdman Power Dam Gets New Lease on Life

The Hurdman Power Dam at Mattawa will soon be operating again. The dam, in disrepair since 1978, was purchased and partially reconstructed by the ministry in 1979-80. Before shutting down, the station produced up to 600 kilowatts of energy from its single turbine.

In March, 1983, the Minister of Natural Resources announced that Barber Hydraulic Turbine Ltd. of Port Colborne, was the successful bidder in a tender to lease the Hurdman dam and put it back into operation.

The dam will be leased to the private sector to produce hydroelectric power for sale to Ontario Hydro. The dam is the first site leased to a private company by MNR as part of a government policy to encourage the development of small-scale hydraulic power sites in Ontario.

Special Employment Program Aids Conservation Authorities

A special employment program jointly funded by the provincial and the federal governments provided much-needed temporary employment in 1982-83 through the conservation authorities across Ontario. A total of 76 projects were approved, providing 736 laid-off workers with 9,979 work-weeks of employment, at a provincial cost of $4,643,472.

The projects were sponsored by the conservation authorities and included such work as watercourse reclamation; stream rehabilitation; erosion control; rehabilitation of fisheries habitats; park improvements; and construction of boat ramps and fishing docks. Numerous wildlife projects were also sponsored by the conservation authorities.

The success of the five special employment programs of MNR and the Canada Employment and Immigration Commission was unprecedented. Provincial funds for the programs were provided by the Board of Industrial Leadership and Development.

Aviation and Fire Management

1982-83 Aviation and Fire Management Program Highlights:

- Ontario experienced 1,396 forest fires during 1982-83, but only 3,982 hectares of Ontario forests were lost.
- MNR sent two provincial fire teams to assist forest fire suppression activities in Alberta; loaned firefighting aircraft to Manitoba, Saskatchewan and Alberta; and firefighting equipment to British Columbia.
- The AFMC Director travelled to the People's Republic of China during 1982-83 to undertake a CIDA-sponsored study of potential fire management assistance to that country.
- Two Canadair CL-215 heavy waterbombers were purchased by the ministry for the beginning of the 1983 fire season.

Left: Less than 4,000 hectares of forest were lost to fire during 1982.

The 1982 Fire Season: Weather Made a Big Difference

Only 3,982 hectares of Ontario forest were lost to 1,396 fires in 1982. Two factors contributed to this low loss: favorable weather conditions and the extra preparedness of MNR's Aviation and Fire Management Centre (AFMC) staff.

Over the winter of 1981-82, AFMC staff—with the co-operation of the federal Atmospheric Environment Service—monitored the weather patterns and the long-term Ontario forecasts to see how much precipitation our forests were getting and to watch for trends in pressure systems and prevailing winds.

Near normal levels of precipitation, along with below normal temperatures, combined to produce a slow snow melt in the early spring of 1982. Long-range weather forecasts called for winter-like conditions to last throughout much of April—a critical month in the fire management calendar—and the forecasts were right. The 1982 fire season got off to a slow start and never developed the severe burning conditions of the past several years.

Being Prepared Helped, too

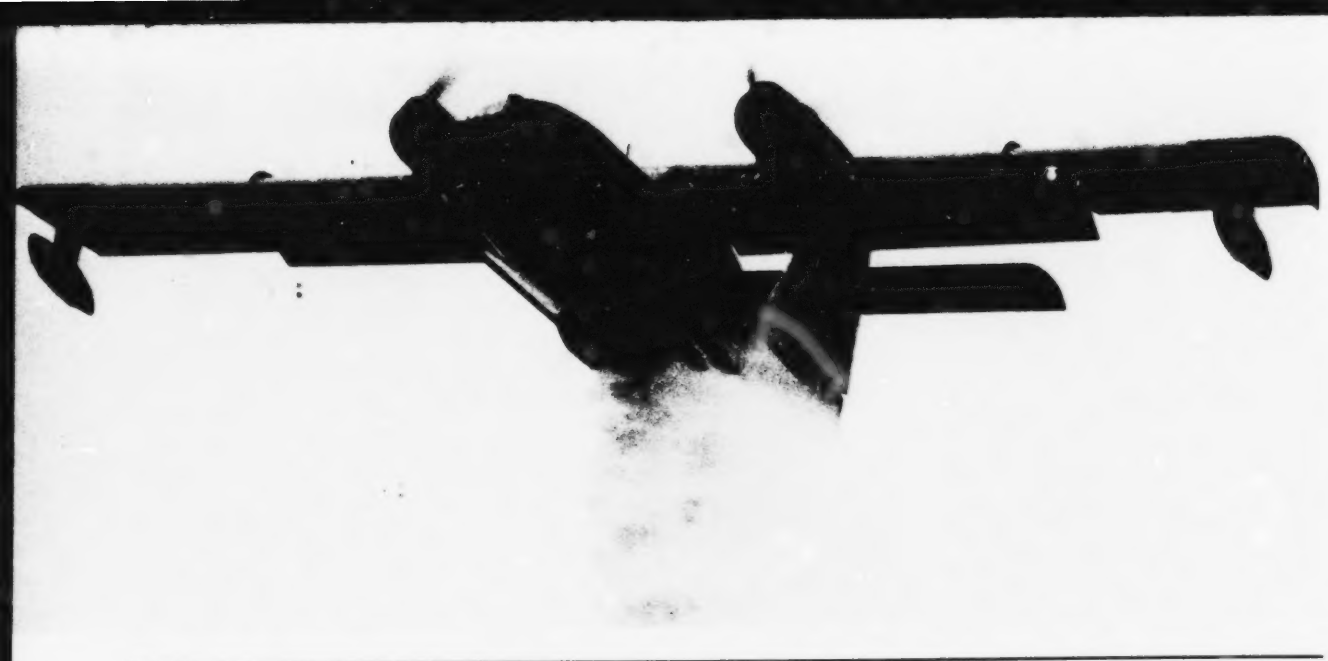
The long-range weather forecasts for Ontario in 1982 caused the Aviation and Fire Management Centre staffers to adopt a guarded optimism about the fire season. Nevertheless, they prepared carefully for the season—even more than in previous years. The extra preparedness was made possible by a fiscal shot in the arm—in the form of a $6-million budget increase to improve the province's firefighting and protection activities. The additional funding allowed MNR to increase the number of firefighting unit crews by 30 to a total of 175 permanent crews. Also acquired were additional heavy waterbombers (including a CL-215) and helicopters, bringing the Centre's fleet to nine heavy waterbombers and 17 helicopters.

The additional funds also helped MNR to improve its capabilities in several other areas, including fire detection, training, protection, equipment and technology.

Fewer Fires Meant Less Fire-Flying

The reduced fire activity of the 1982 season meant that MNR's firefighting aircraft flew less than usual, and that short-term leasing of additional aircraft was substantially lower than in the two previous years. In all, 77 aircraft were used during 1982 for fire management: 17 contract helicopters for fire attack; 19 contract aircraft for fire detection; and a total of 41 heavy waterbombers—a Canadair CL-215, eight Cansos, five Twin Otters, 13 Otters and 14 Turbo Beavers.

The CL-215 came from Canadair under a demonstration agreement. MNR used it for waterbombing and familiarizing pilots with the plane's operation. The aircraft is a state-of-the-art waterbomber. In a 10-second skim over a suitable lake or river, the CL-215 can scoop up 5,455 litres of water into its tanks, and remain



airborne for up to four hours without refuelling. During 1982-83, MNR signed an agreement with Canadair to purchase two CL-215 aircraft, which were to be delivered in time for the 1983 fire season.

The 1982-83 MNR aircraft operating year was by no means light, however. During the fiscal year, ministry-owned aircraft flew a total of 15,180 hours, on all kinds of government business—firefighting and protection, surveying, forest cruising, transporting MNR and other ministries' personnel, and mercy flights. The ministry also chartered privately-owned aircraft to fly more than 25,000 hours in 1982-83.

Improving Fire Management in Ontario

Over the years, fire management in Ontario has evolved into a policy of total suppression—an attempt to suppress all fires, in Ontario forests, at all costs. Looking at the overall picture, MNR's fire management planners realized that this policy was both impractical and uneconomical. There are only so many resources that can be mustered to fight forest fires, and there are times when those resources have to be stretched to do the job.

MNR's foresters know that, like sunlight and rainfall, fire is an important part of the ecological cycle. Put simply, not all forest fires are bad. In fact, they play an important part in the natural regeneration of a forest.

With these things in mind, the MNR Fire Management Improvement Project (FMIP) was begun in 1980 to develop an improved fire management system for Ontario—to develop a plan, and to implement it. FMIP entered its final phase in 1982-83, after MNR's corporate fire management policy received approval in May, 1982.

The new policy outlined the basic principles, definition, roles, relationships, responsibilities and overall objectives of the ministry's fire management activities. As well, the policy stated three objectives for the MNR fire management program: to prevent loss of human lives, personal injury, and social disruption caused by fire; to ensure that fires have a minimal effect on public works, private property and natural resources; and to use the natural benefits of fire to achieve MNR objectives for land and resource management.

The thrust of the policy is to ensure that MNR's forest firefighting capabilities continue to be efficient, up to date, and effective.

Educating the Public About Forest Fires

Even though forest fires are perfectly natural, not all of them are caused by lightning. Sadly, many fires are caused by humans—sometimes those who love the forests the most. All human-caused fires are preventable, especially if the people who live, work and play in the forests are educated about the many ways to prevent forest fires. AFMC staff worked during 1982-83 on an improved fire prevention program which they hope will help to prevent many of Ontario's [illegible] caused fires.

The new prevention system includes the following components: a marketing study to determine the best ways of getting fire prevention information to the target audience; a communications plan to devise objectives, target audiences, formulate messages and estimate probable costs; and built-in monitoring capability to allow the ministry's fire managers to tell whether their prevention measures are effective, or whether the system needs changes.

The new prevention program also includes a school component and a catalogue of useful fire prevention materials, and should enable MNR staff to do four things: determine the preventable fires which have the highest impact on our forests; design a prevention program tailored to a specific audience; monitor the success of their efforts and plan any necessary revisions to the system.

Centralizing Ontario's Forest Firefighting Efforts

Because of the rapid developments in information technology, centralized computer systems can and are being used more and more to assist fire managers in making the crucial decisions on fire suppression strategies. These computer systems are located in the five MNR Regional Fire Centres: the headquarters of the ministry's firefighting efforts across Ontario.

Tests of this centralized approach to fire management were carried out in MNR's Northern Region in 1982. The results were very encouraging. It improved the use of the highly mobile water-bombing and initial attack aircraft, thus helping to make the ministry's firefighting operations in the region swift

and efficient. A crucial component of MNR's initial attack strategy is to allow aircraft to ferry MNR fire crews and equipment to the fires quickly, enabling them to contain the fires before they get out of control.

Working with Industry to Control Fires

For two years now, MNR has been working with the Ontario Forest Industry Association (OFIA) to train forest workers to fight and to control forest fires. The industry has taken on increased responsibility for fire prevention and suppression, and is sending future trainers to MNR for instruction in fire management. Such a training program is logical because industry staff are often closest to a fire, and in the best position to contain it before MNR firefighting crews can get to the scene.

During the two years of the co-operative training program, several hundred forestry workers have received firefighting and prevention training, thanks to MNR instructors and the industry instructors whom the ministry trained. In the spring of 1982, AFMC staff conducted Initial Attack Fire Boss courses for 66 supervisory personnel attached to 10 different forest companies.

By the end of the 1982-83 fiscal year, the forest operators in Ontario had developed improved fire plans—plans detailing what contingency measures would be taken in the event of a forest fire. Together, the companies' fire plans and the firefighter training sessions will make industry-MNR fire management operations more effective.

Fire Management Enters the Technological Age

MNR runs a sophisticated fire management program, using dozens of aircraft, hundreds of highly skilled personnel and the best possible equipment. But this is the Information Age—the age of the computer—and the Aviation and Fire Management Centre is taking further advantage of many of the benefits that the new technology has to offer.

Unlike other resource management areas, many fire management activities are necessarily reactive—based on the characteristics of each new fire. Every fire is a separate entity and the special nature of each fire gives rise to a different set of needs. Modern information technology can help fire managers prepare for emergencies in advance, and help them make crucial strategy decisions more quickly when a fire breaks out.

When a forest fire is raging, every second is precious to the people whose job it is to decide what to do about it. Hundreds of factors must be considered—local populations and businesses; the location, size, and scope of the fire; the wind, the temperature, and the dryness of the forest; the history of previous fires in the area; and the resources available to deal with the fire. Computers are ideally suited to sorting through information like this at speeds far in excess of the human brain. Computers can't make the decisions, but they are a big help to the managers who do.

AFMC's Decision Support System study investigates the uses to which computer technology can be put in the management of fire. During the 1982-83 phase of the study, the Northern Regional Fire Centre in Timmins was linked to the computer system at the Petawawa National Forestry Institute in Chalk River. MNR fed the computer all the available historic fire occurrence data for Northern Region. Now the ministry can use the data to develop a computer prediction system for human-caused fires and lightning strikes.

Aviation and fire management staff also worked on computer models which will assist fire managers to allocate resources, and to reach a better understanding of the way fires develop from tiny blazes into huge conflagrations. Another development in 1982-83 was a computer-based simulation model of Ontario's initial attack fire suppression system. The model is called the Initial Attack Aircraft Study, and is being used to help make decisions about MNR's aircraft fleet—its deployment, its effectiveness and its future composition.

Lightning Doesn't Have to Strike Twice

Lightning strikes caused at least 230 forest fires in 1982—fires which burned about 40 per cent of the total forest area lost during the year.

Since 1978, MNR has been testing a lightning locator system in Northwestern Ontario—with excellent results. During 1982, the ministry decided to expand the system to its Northern and North Central Regions. By the beginning of the 1983 fire season, the Regional Fire Centres in Dryden, Thunder Bay, Timmins and Sudbury were to have access to lightning locations—shown on up-to-the-minute lightning distribution maps which reveal cloud-to-ground lightning strikes.

The lightning maps will assist staff to monitor storm locations, plot detection routes for aircraft and move initial attack resources to fire zones.

Radio Waves Help Put Out Fires

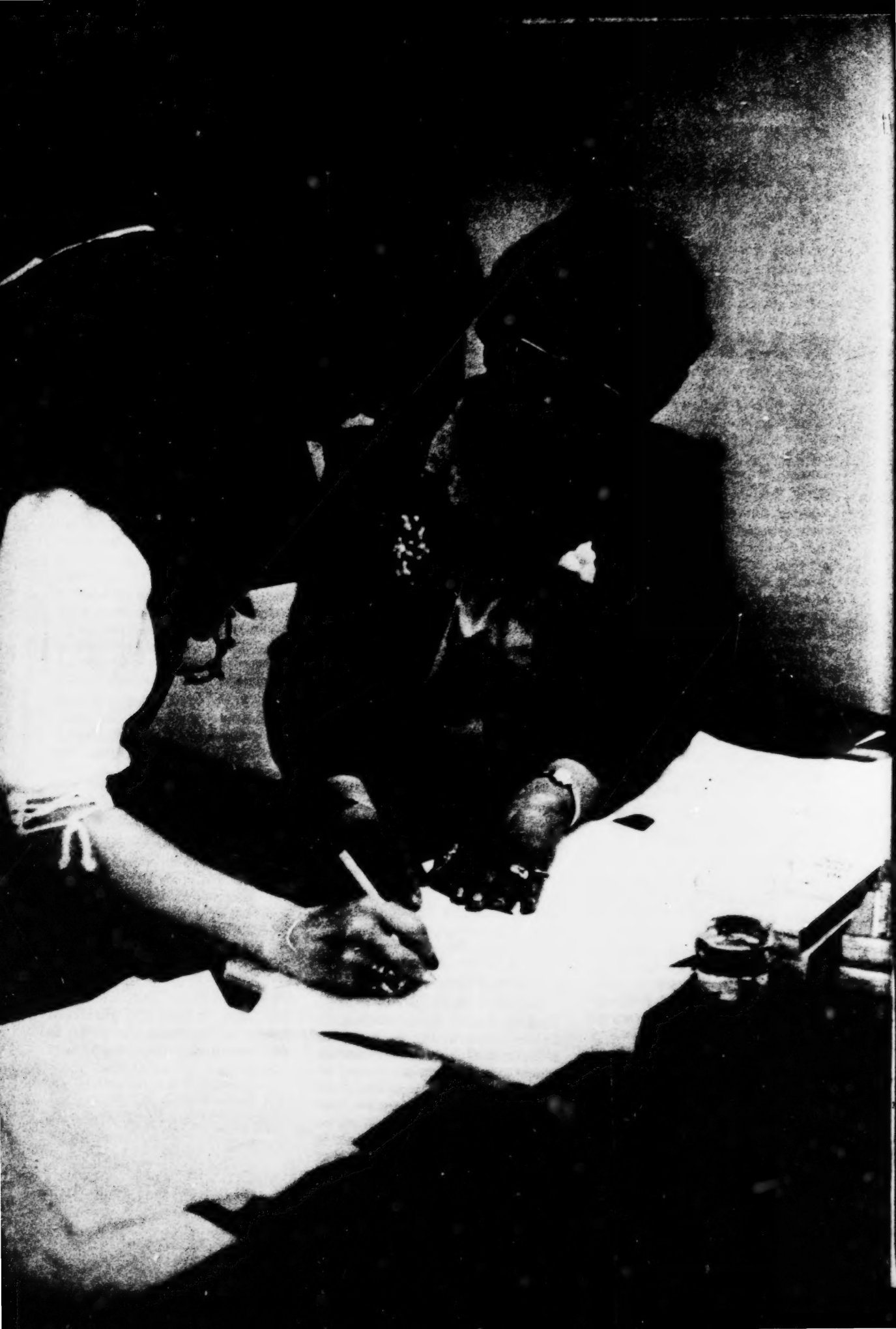
Although MNR is using some of the latest micro-computer technology in fire management, one of the oldest forms of electronic technology—radio—is alive and well and helping the ministry's fire managers do their jobs more effectively. It's hard to exaggerate the importance of good communications in the fire management process. Field crews have to speak by radio to the main base of operations, to each other, and to the fire suppression aircraft operating in the same area. And, until recently, all three groups fighting a fire had to use the same radio frequency, one that was allocated to the particular fire.

That often meant more than 20 aircraft and many ground personnel were all trying to use the same radio frequency. To eliminate confusion, MNR designed a special communications kit especially for firefighting: the Tactical Action Communications Kit (TACK). The kit comprises small, hand-held radio units, a system of pocket pagers, and relays, using either six or eight assigned channels.

The TACK kits permit a small radio network to be set up on special frequencies, so that several firefighting units can each have a private channel for interference-free operation. Extra channels are built into the system so that the ground crews and aircraft can talk to their base when necessary.

During 1982-83, radio repeater stations were established in Quetico Provincial Park, and in the Hearst, Kirkland Lake and Nipigon Districts of MNR. Radio linking systems were installed last year at MNR's Thunder Bay, Geraldton and Nipigon Districts, and in Algonquin Region. The systems extend VHF radio coverage beyond the normal ranges. The Thunder Bay system covers an area north into timber territory near Holinshead Lake. The Geraldton system covers an area northward to the Albany River forest.

Left: The Canadair CL-215—the plane can scoop up 5,455 litres of water into its tanks in just 10 seconds.



Administration

Left: Keeping the public informed is one of the most important duties of MNR staff.

Right: MNR program and administrative staff attended hundreds of public meetings and information sessions, and fielded thousands of questions from the public during 1982-83.

MNR Strategic Information Processing Plan Under Way

High-speed computer technology is now an accepted, everyday part of business life in most places. Computers are helping government to process information thousands of times faster than in the past, and more cheaply and efficiently. Since 1980, MNR has been developing a long-term strategy to co-ordinate all of its information processing operations—to ensure that the equipment it acquires can be incorporated into a ministry-wide information network. The strategy is known as SIPP—the Strategic Information Processing Plan.

In October, 1982, the Management Board of Cabinet approved the acquisition of a mini-computer at MNR's Main Office and a micro-computer link in Timmins—the first acquisitions in the eventual ministry-wide information handling network.

The ministry is now studying all its information processing needs. During the next few years, MNR will develop a co-ordinated strategy for information processing, so that the information needed by line managers to function effectively will be readily available.

Teleconferences Cut Travel, Accommodation Costs

Because of MNR's decentralized structure—47 districts and eight regional offices across the province—staff members of various technical and management committees may have to put in a great deal of travel time. A most effective alternative to committee meetings, however, is the teleconference call—a meeting where people get together over the telephone. And more and more MNR committees are using teleconferencing to cut costs.

Teleconferencing saves money because a telephone meeting requires no travel or accommodation expenses. Teleconferences can be arranged quickly, and the meetings can be shorter and more frequent.

During 1982-83, teleconferencing was one of the important tools used by MNR managers to cut committee costs. Almost every other Executive Management Committee meeting, for example, now uses speakerphones to connect Main Office staff with staff in Maple and Thunder Bay.

New Energy Handbook Produced

The Ministry of Natural Resources manages approximately 4,000 buildings, representing some 185,800 square metres of floor space. The buildings range from office complexes to park comfort stations, from tree seed depositories to fish culture stations, so energy requirements differ widely. And energy is expensive. To help its building managers save on energy consumption, MNR produced a handbook on energy conservation during 1982-83.

Funded by the Ministry of Energy, the new handbook is titled *A Handbook: Energy Conservation in Ministry of Natural Resources Buildings*. The handbook contains sections on several energy-saving techniques: energy management, low-cost and no-cost conservation measures, sample energy budget and audit calculations and reference material.

Contracting Workshops/ Seminars Helpful to Managers

Managers at MNR are using private individuals and companies more and more to help accomplish the ministry's program objectives. Because MNR staff are continually involved in managing such contractual relationships, the Administrative Services and Legal Services Branches co-operatively presented a series of contracting workshops and seminars to ministry staff in 1982-83.

The courses dealt with the tendering process, drafting contracts, using consultants and administering contracts, among other things. Over 300 staff members attended the sessions, which were held in all eight MNR regions throughout the province. The participants got an opportunity to hone their skills and to exchange their views and experiences in contract management. The workshops and seminars are currently being refined and partially redesigned, and will be offered in the next fiscal year to specific target audiences within the ministry.

Total MNR Staff

March 31,1983	Regular	Unclassified	Total
Main Office	917	318	**1,235**
Field Offices	3,387	1,062	**4,449**
Total	4,304	1,380	**5,684**

After Seven Years, There've Been Some Important Changes

The Affirmative Action Program at MNR has been in existence now for seven years. During that time, impressive changes have occurred—both within MNR and in the program itself. All the changes have contributed to the program's long-term goal—to achieve equal opportunity for women Crown employees by raising and diversifying their occupational status.

Thanks in part to affirmative action, the wage gap between male and female employees of MNR has decreased by 7.3 per cent since 1975. That's quite an improvement in itself. Also since 1975—when the Affirmative Action Program began—the percentage of women employees in MNR's Administrative Module has grown by more than 250 per cent and in the Administrative Services category by about 125 per cent.

During 1982-83, 100 per cent of MNR's total number of hire/promotion targets were met. The ministry's managers provided 48 women with accelerated career development assignments. Since 1980, when Accelerated Career Development was formally introduced throughout the government, MNR has continually surpassed the minimum government requirement set by Management Board.

MNR achieved several important first-ever appointments in 1982-83. These included the first female Manager of Compensation and Staff Relations, the appointment of a woman as Manager of Information Services in the Communications Services Branch, and the appointment of MNR's first female Regional Director (to be effective in 1983-84).

MNR women have also achieved significant progress in the scientific and technical categories. At the end of March, 1983, MNR's classified staff included eight female foresters, 10 biologists, 10 community planners, two geologists, three geological assistants and 28 resource technicians. In addition, there were many other women working in these positions as unclassified employees. The 1982 Junior Ranger Program hired women for 44.8 per cent of the available positions—compared with 28.2 per cent in 1975.

Left: At the BILD Show, in February, 1983, MNR featured displays of some of the many programs that are assisted by the Board of Industrial Leadership and Development.

Right: During the Affirmative Action Program's first seven years, women gained increasingly important roles in the ministry's scientific, technical and administrative categories.

Affirmative Action Program Changes with the times

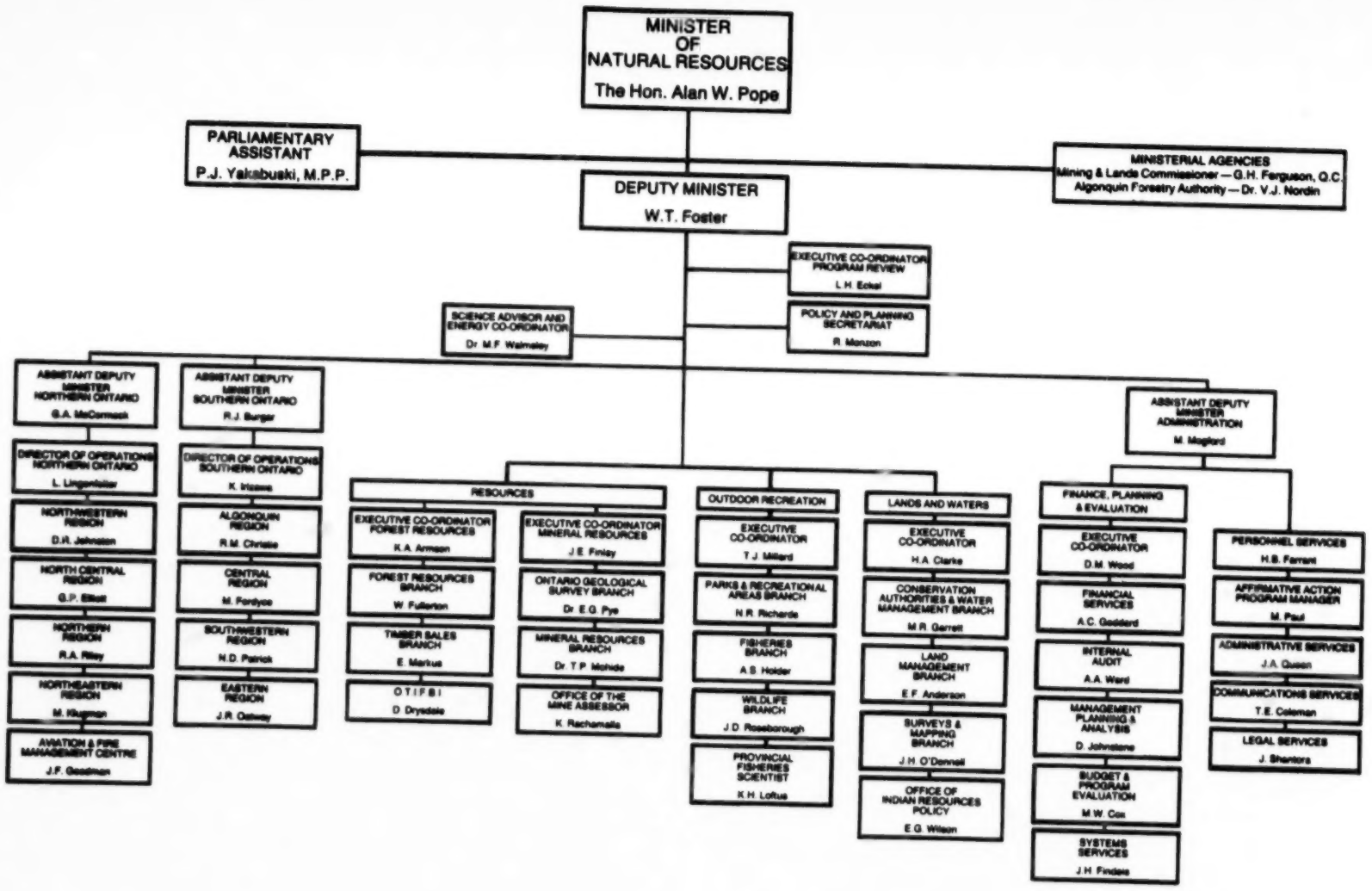
During 1982-83, the Ministry of Natural Resources reviewed its affirmative action program intensively. The review led to the distribution of an affirmative action policy paper to MNR managers across Ontario in August. Managers gave it widespread support, and a number of changes to MNR's Affirmative Action Program were made.

The two-pronged thrust of the changes was to define affirmative action's role in MNR more clearly and to incorporate affirmative action into regular management processes. Line managers are now accountable for the implementation and results of affirmative action policies. A temporary implementation committee was formed, which was composed of MNR managers from across the province. By the end of March, 1983, the committee had made recommendations concerning ways of blending affirmative action policies and procedures into the ministry's work program planning and performance monitoring systems.

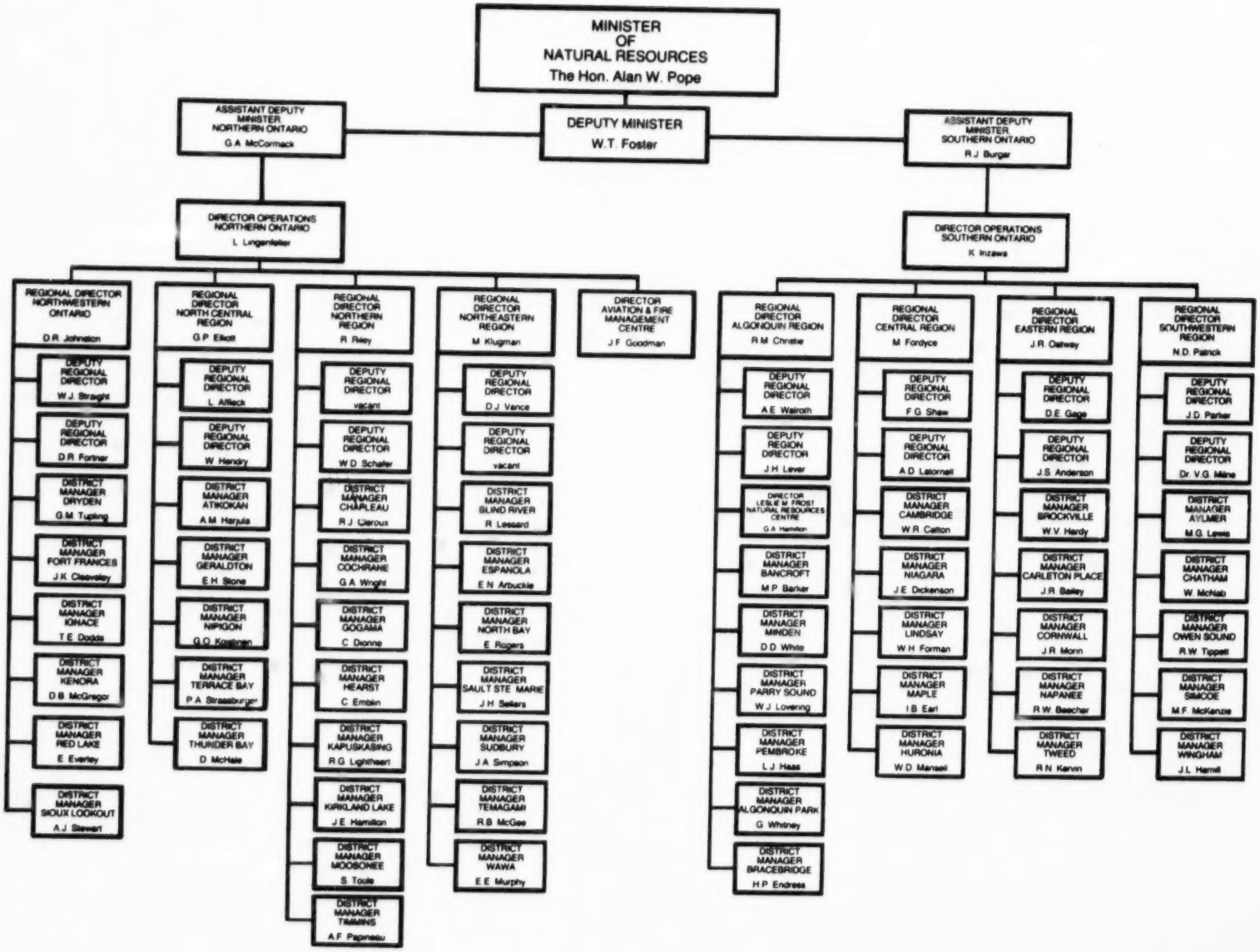
The new policy means that affirmative action has become manager-centered—a significant change in approach from the two-tiered, centrally-directed network of Affirmative Action Representatives which had been in place since 1977. During 1982-83, the representative network continued to be in place, but it is now being phased out as MNR's line managers assume responsibility for affirmative action.

Throughout the 1982-83 fiscal year, MNR's Affirmative Action Representatives organized 14 workshops, which were attended by 353 MNR employees. The workshops were on topics such as stress management, communications skills and office technology. The reps also organized field trips to MNR operations centres such as tree nurseries, fish hatcheries and provincial parks, which gave female employees a first-hand look at the wide range of ministry activities.

Ministry of Natural Resources Organization Chart 1983



Ministry of Natural Resources Field Organization Chart 1983



Budgetary Expenditure

for the Year ended March 31, 1983

Ministry Administration Program	$ thousands
Main Office	4,581
Financial Services	2,641
Supply and Office Services	4,204
Personnel Services	1,576
Information Services	3,460
Systems Development Services	912
Legal Services	946
Audit Services	814
Field Administration	31,898
Total for Ministry Administration	**51,032**

Land Management Program	
Conservation Authorities and Water Management	48,707
Aviation and Fire Management	38,679
Extra Firefighting	2,981
Land Management	21,957
Resource Access	4,100
Surveys and Mapping	11,656
Total for Land Management	**128,080**

Outdoor Recreation Program	
Recreational Areas	31,649
Fish and Wildlife	40,902
Wasaga Park Community Project	2,377
Total for Outdoor Recreation Program	**74,928**

Resources Products Program	
Mineral Management	21,848
Forest Management	89,447
Total for Resource Products	**111,295**

Resource Experience Program	
Junior Rangers	4,758
Youth Corps (Experience '82)	2,931
Leslie M. Frost Natural Resources Centre	1,294
Total for Resource Experience	**8,983**

Total Budgetary Expenditure	**374,318**

Budgetary Revenue

for the Year ended March 31, 1983

Ministry Administration Program	$ thousands
Reimbursement of Expenditures	
Other	80
Sales and Rentals	1,656
Recovery of Prior Years' Expenditures	54
Other	76
Total for Ministry Administration	**1,866**
Land Management Program	
Royalties	
Water Power	23,618
Timber Area Charges	3,281
Mining	
Sand and Gravel	1,406
Acreage Tax	528
Fees and Licences	923
Reimbursement of Expenditures	
Government of Canada	1,103
Other	361
Sales and Rentals	2,046
Sale of Crown land	1,692
Recovery of Prior Years' Expenditures	151
Total for Land Management	**35,109**
Outdoor Recreation Program	
Reimbursement of Expenditures	
Government of Canada	270
Other	210
Recreational Areas	7,913
Fish and Wildlife	14,570
Recovery of Prior Years' Expenditures	2
Sales and Rentals	492
Royalties	729
Total for Outdoor Recreation Program	**24,186**
Resources Products Program	
Mineral Management	
Profits Tax	26,179
Royalties	4,049
Fees and Licences	453
Sales and Rentals	1,455
Forest Management	
Stumpage	39,172
Forest Products	268
Stock Production	665
Reimbursement of Expenditures	
Government of Canada	1,187
Other	13
Sales and Rentals	547
Royalties	185
Total for Resource Products	**74,173**
Resource Experience Program	
Frost Centre Facilities	401
Total for Resource Experience	**401**
Total Budgetary Revenue	**135,735**

Associated Agencies, Boards and Commissions

The Ministry of Natural Resources is associated with a number of agencies, boards and commissions. Each of these relationships is based on natural resources management, and varies from group to group.

Some of the relationships are informal. The ministry is Ontario's official natural resources manager, and often participates informally in the activities of other government and private agencies to promote co-operation in the effective management and protection of the province's natural resources. There are many public and private agencies in Ontario whose goals and objectives are compatible with those of MNR. Such groups as the Nature Conservancy of Canada, the Ontario Forest Industry Association, the Ontario Heritage Foundation and Parks Canada are examples of the many different groups whose interests lie within the natural resources sphere. MNR's informal relationships with such groups encourage co-operation in the policy, planning and development of Ontario's natural resources.

Other relationships are more direct, through administrative or financial links between different groups and MNR. Some of these associated agencies produce individual annual reports, and the reader should refer to the separate annual reports of the following agencies for information on their activities during 1982-83:

- Algonquin Forestry Authority
- Conservation Authorities (Ontario had 39 Conservation Authorities operating during 1982-83)
- Provincial Parks Council

The following is a brief description of the agencies, boards and commissions that are financially or administratively associated with the ministry, and do not produce separate annual reports of their own.

Mining and Lands Commissioner

The Mining and Lands Commissioner exercises administrative and judicial functions over a number of statutes which are administered by the Ministry of Natural resources. During 1982-83, the Commissioner conducted 44 hearings. Of these, 27 hearings and appeals were under The Mining Act, 16 hearings and appeals were under The Conservation Authorities Act, and one hearing was held under The Lakes and Waters Improvement Act. No hearings or appeals were heard under The Beach Protection Act or The Mining Tax Act in 1983-83.

On July 1, 1982, the Commissioner's office moved from the fifth floor of the Mowat Block in Queen's Park to 700 Bay Street, Toronto.

Provincial Boards of Examiners

Every year, MNR staff are appointed to two provincial Boards of Examiners, which set the written and practical examinations for wood measurement. The Board members used to be appointed by the Lieutenant-Governor-in-Council but, in 1982-83, were appointed for the first time by the Minister of Natural Resources.

The boards are responsible for making recommendations to the Minister of Natural Resources for the issuing of a provincial Scaler's Licence to successful examination candidates. Scaling is the process of estimating the quantity and quality of standing timber so that its processed value may be pre-determined. In 1982-83, the Boards examined about 125 candidates for Scaler's Licences, and the Minister of Natural Resources issued Scaler's Licences to 81 successful candidates.

Game and Fish Hearing Board

This board is composed of five members, who are appointed by the Lieutenant-Governor-in-Council. It conducts hearings into cases where the ministry has refused an application for a commercial hunting or fishing licence. The Board hears evidence and delivers a written summary and recommendations to the Minister of Natural Resources, who then may or may not issue a licence.

Public Agricultural Lands Committee

This committee reviews all applications for public lands required for agricultural purposes. The committee is composed of staff from MNR and the Ministry of Agriculture and Food. During 1982-83, the committee dealt with 12 applications, most of which were from farmers who wanted to enlarge their operations on Crown lands in northern and northwestern Ontario.

Ontario Geographic Names Board

The Board was established by statute in 1968, and is made up of seven members — two from MNR (including the Surveyor General) and five appointees from the private sector. The Board is Ontario's official custodian of a bank of records containing approximately 120,000 geographical names. To date, about half of these names have been officially approved for government use on all maps, charts, gazetteers and other government publications.

During 1982-83, the Board advised the Minister of Natural Resources on matters affecting Ontario's place names and developed policies on the jurisdiction, legislation and storage of Ontario's geographic names. The Board also developed policies on the treatment of French language names in Ontario. The Board's Secretariat prepares submissions, processes recommendations, correspondence and enquiries. It also meets with local government organizations in order to resolve disputes. The Secretariat handles all official geographic name changes for the province. The Surveyor General for Ontario co-ordinates Ontario's representation at meetings of the Canadian Permanent Committee on Geographical Names.

POOR

QUALITY

ORIGINAL